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THE PAPER TRADE JOURNAL.

"The Consumption of Paper is the Measure of a People's Culture."

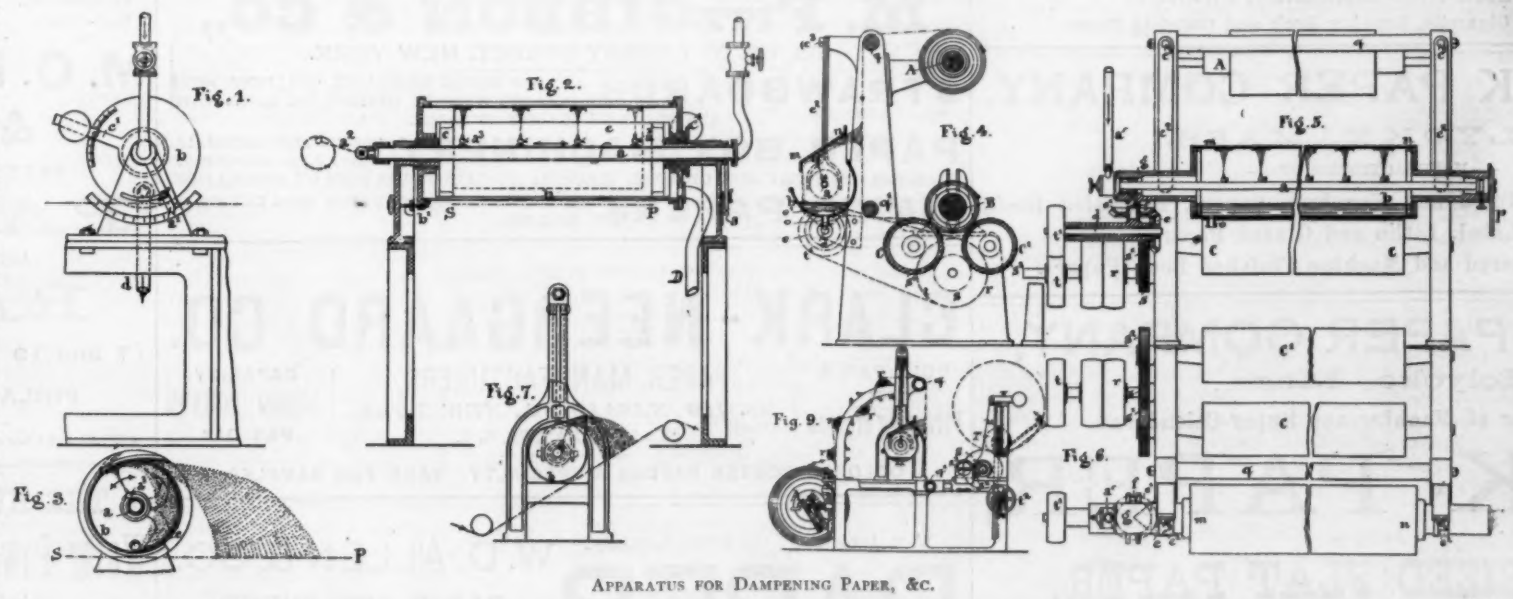
VOLUME XIX.—NO. 10. NEW YORK, MARCH 8, 1890. WHOLE NUMBER 827.

Trade Topics.

Dampening Apparatus.

The illustrations presented on this page show the form and construction of a device intended to be used for dampening paper and other fabrics, or for applying size, color or other finishing material to paper.

Figure 1 represents an end view and Fig. 2 a central sectional view, at right angles to Fig. 1, of the apparatus in its simplest form. Fig. 3 is a transverse sectional view parallel with Fig. 1 and at right angles to Fig. 2. Fig. 4 is a side view, partly in section, of another example of the apparatus, showing combined with it means for delivering the material or fabric under treatment to the apparatus and afterward winding up the material or fabric. Fig. 5 represents an elevation, partly in section, taken at right angles to Fig. 4, of the same apparatus. Fig. 6 is a plan view corresponding with Figs. 4 and 5. Fig. 7 is a diagram illustrating an apparatus to which the material or fabric is fed in a different direction to that illustrated by Figs. 4, 5 and 6. Fig. 9 is a vertical section illustrating an atomizing apparatus with means for unwinding and winding the fabric or material different from those shown in Figs. 4, 5 and 6.



APPARATUS FOR DAMPENING PAPER, &c.

The apparatus is mainly characterized by a central pipe, *a*, communicating with a main pipe under pressure or with any high reservoir filled with the liquid to be distributed, pipe *a* being provided with a series of perforations in one line. The issue of the liquid may be regulated by cocks, a^3, provided for each perforation, or by a valve provided in the main pipe. The distributing pipe *a* is surrounded by a mantle or cylinder, *b*, which in its entire length is provided with a slot or aperture which may be open or closed at will by a slide, *c*. The parts are arranged adjustably. For this purpose the pipe *a*, fitted to the heads or ends of cylinder *b* with stuffing boxes, may be adjusted or turned according to the index *a'* on a dial, in order to alter the direction of the jets of liquid. The pipe *a* may be subject to a movement in lengthwise direction by means of the crank a^2, in order to distribute the descending spray of liquid over the entire width of the surface S P of the paper or fabric by allowing the jets to traverse to and fro in that direction. Besides this traversing motion in lengthwise direction a partly revolving motion may be given to the pipe *a* in any suitable manner.

The cylinder *b* may be made adjustable and secured in its position around its axis by means of a screw bolt, *b'*, arranged in the frame of the apparatus and taking into a circular slot provided in one of the heads of the cylinder. In this manner the points or the line on which the jets of the liquid meet the inner surface of the cylinder may be altered in regard to the distance from the rim or border of the slot or aperture provided in the cylinder, through which slot or aperture the spray issues against the surface of the material under treatment. Furthermore, the slide *c* is made adjustable by means of the arm *c'* and screw and slot, in order to close or open at will the aperture for the issue of the spray. At one of the heads or ends of the cylinder an outlet pipe, D, is arranged for conducting away all liquid which accumulates in the bottom part of the cylinder.

By means of this arrangement of parts the liquid may be divided into a fine spray by dashing against the inner surface of the cylinder, and the opening for the issue of the spray may be thus so regulated that all the spray or part of it uniformly spreads over the surface S P, which travels in front of, over or underneath the opening. In this way any drops are avoided upon the surface S P.

If it is desirable to use material to be distributed in a molten state—such as wax, paraffine, &c.—the cylinder *b* may be provided with heating pipes, or may be arranged with double walls, so that they may be heated by introducing steam.

The spray apparatus is composed of a cylinder, *b*, and a central pipe, *a*, provided with perforations in one line and connected by a flexible hose, a^5, with the main liquid pipe or a liquid reservoir. The cylinder *b* may, as shown in Figs. 4 and 5, be replaced by a trough, *b*, supporting a shield, *m n*, the latter being arranged over the trough. Against this shield the jets of the liquid meet, the spray created being directed partly in the direction from *m* to *n*, in order to issue against the traveling material, and partly in the direction from *n* to *m* where it meets a vertical rim of the shield, and is caused to drop down into the trough, from which it is conducted by the outlet *o*, by any suitable means, into a reservoir for repeated use. The pipe *a* may, by the handle *p*, be partially turned about its axis, in order to alter the direction of the jets against the shield *m n* and against the aperture for issue. In order, however, to be able to reduce the jets of liquid producing the spray and yet to produce the issue of a spray of a width in proportion to the width of the traveling material to be moistened, the apparatus is carried in the framing by hanging arms, c^4 c^5, which are pivoted at c^6 c^6. On the shaft *d* a bevel wheel, *e*, is keyed, taking into bevel wheel *e'*, turning on a sleeve around the shaft *d*. This bevel wheel *e'* carries a crank pin, *f*, which takes into a slot provided in the lower part of the sleeve *g*, so as to impart a to and fro motion to the entire spray apparatus according to the eccentricity of pin *f*.

The paper or other material is rolled upon the roller A, whence it is conducted over the guide rollers *q q'* in the direction of the arrow, receiving on its course the spray from the apparatus. From *q'* the material is wound upon roller B, which is carried by the friction rollers C C', the latter receiving rotary motion from the pulley *r* and spur wheel S S' S^3. The rotary motion is transmitted from the pulley *t* to the pulley *t'* on the shaft *d*, which carries the bevel wheel *e*.

The atomizing apparatus, as illustrated in Fig. 9, in its combination of the central pipe and of the trough with the upper shield suspended in arms for receiving a lengthwise motion, is the same as in that represented in Figs. 4, 5 and 6; but it is arranged in the middle of a framing, which carries at one side a roller, A, with the material to be covered, moistened, or impregnated by a spray of liquid. The axle of the roller is provided with a simple brake device for regulating the tendency of the roller to unwind. Between this roller and the atomizing apparatus part of the framing is arc shaped to receive in proper bearings rods *r*, of suitable cross section, for guiding the material from the roller A to a top guide roll, *q*, from whence the material runs to a lower guide roll, *q'*, undergoing on its course between the two rollers the action of the atomizing apparatus. The rods *r* are arranged for straightening, unfolding and regulating the course of the material. From the roller *q'* the material runs partly around the roller *s*, which receives rotary movement in any suitable manner on its shaft. This roller *s* causes by friction the rotation of the roller T, the trunnions of which are situated within vertical slots of the framing *u*. The roller T in its revolution winds up the material. If the roll of material wound on said roller has grown to a certain diameter, one side of the framing *u*, which is pivoted at its foot, may be turned down by lifting the cover *v* at top of the framing, in order to allow the filled roller T to be rolled out of the framing. From the axle of the roller *s* motion is transmitted by bevel gearing *s*^{4} to the apparatus s^3 for registering the length of material. t^3 is a device of hand wheel gearing and rack, which takes by a hook around the axle of the roller T, to regulate the pressure of the latter against the roller *s* for the smooth winding of the material upon the roller T.

There is a deflector, against which the jets of liquid from the pipe *a* will strike, and from which the liquid will be distributed in the form of a spray upon the passing or traveling material.

Care and Repair of Water Wheel Steps.

BY C. R. TOMPKINS, M. E.

As the life or length of time that a machine of any kind may retain its good working qualities depends upon the care bestowed upon it, it becomes of the utmost importance to those who have the management of the same to become familiar with those parts that require the most care and that are the most liable to give out by neglect or wear out by constant use. In machinery of all kinds there are always some parts that are subjected to more wear and strain than others, and those parts should be carefully attended to, for the reason that all machinery is composed of certain parts that go to make up the whole; and whenever one part, however insignificant it may appear, becomes worn out or broken, the usefulness of the whole machine is suspended for the time. For instance, the small pinion that drives the feed works of a planing machine may appear to be of little importance, and, in fact, it is, so far as the cost of replacing it is concerned; but let that pinion become worn out or broken, unless there is a duplicate on hand to replace it, the whole machine is as effectually disabled for the time being as it would be if the cylinder shaft were broken.

The same rule that would apply to the planing machine also applies to the turbine water wheel. One of the most important parts to this machine is its step; and although, as compared with the balance of the wheel, it is but a small part, yet without the step the whole wheel is as effectually disabled, until it is replaced, as it would be if the shaft were broken or every bucket stripped from the wheel. Therefore, as the step, simple as it may appear, is one of the most vital parts in the whole combination, it should be watched and well taken care of.

Under ordinary conditions and good treatment, the step of any well constructed turbine wheel will last an indefinite length of time; but, unfortunately for the wheel, it is not always subjected to favorable conditions. Where draft tubes are used steps are more frequently burned out and destroyed than under almost any other conditions. This is caused by the imperfect manner in which they are constructed, and while draft tubes of any considerable length are objectionable upon general principles, yet certain conditions frequently arise where their use becomes indispensable. In such cases too much care cannot be manifested in making them perfectly air tight, and for that reason an iron tube is the most reliable. A draft tube of wood—no matter how well it may be constructed in the first instance—is liable to become defective in time from the shrinking of timbers or the settling of the flume and become leaky, and it requires but a very small aperture at or near the top to destroy its effect and allow the water to settle below the step so that it will run in air instead of water. The step will then heat and burn out, no matter how well it may be constructed, or of what the material is composed.

In ordinary practice, whenever the conditions will admit, it is safer and more economical to place the wheel at the bottom of the fall where the step may always remain in the standing water of the tailrace, although it may involve some additional expense in the construction of the penstock and the additional length of shafting in the first instance. Even then the steps are often subjected to unfavorable conditions and spoiled by the injudicious or careless setting of the wheel. Again, the wheel may be set level and all the conditions appear to be favorable, but the weight of the water will frequently cause the foundation of the penstock to settle, and it is very seldom that all sides will settle alike: and if one side should settle more than the other, the wheel will be tipped to one side and the follower blocks above the case will act as a fulcrum and naturally force the concave upon the end of the shaft to run upon one side of the step and soon destroy it.

This is not the only damage that the wheel is liable to sustain under such conditions. The canting over not only throws the shaft upon one side of the step, but it also forces the wheel hard against one side of the curb, and, if left in that condition for any length of time, not only wears away the curb in one place, but also wears the wheel so that if the damage to the step is finally repaired the wheel, being worn away so as not to fit the curb as formerly, will be leaky afterward, and unless other and expensive repairs are made will lose a portion of the water that would be otherwise utilized. Therefore it is very important when a wheel is set in a new penstock that it should be frequently examined, and if any unequal settling is discovered the wheel should be leveled up, which may be done readily by a few small wedges placed under the flange.

Keeping a close watch and frequently examining a new wheel for a few weeks after it is set will very often save much trouble and expense afterward. One great fault with many of the country mills is in not providing good and convenient head gates whereby the water may be shut off from the wheels. The inconvenience in shutting out the water from the wheels in many of the mills is the most fruitful source of neglect and consequent damage, not only to the steps but every other part of the wheel.

It is well settled among all first-class manufacturers of turbine wheels that the best material for a step is lignum vitæ; but when the original step has given out from any cause it is no uncommon thing to find them replaced with basswood, birch, maple, and in fact it would seem that either every millwright had his own hobby or that the first convenient stick that was met with was used; and often the body of the step will be found from one-half to one inch greater in diameter than the concave at the end of the shaft. This allows the edge of the concave to embed itself into the soft wood and effectually shut out the water from access to the point. Such steps, no matter what they may be composed of, are short lived, and sooner or later will burn out under any conditions.

The safest plan, whenever a step gives out from any cause, is to send to the manufacturers for a new one; but if the same materials can be readily obtained and time saved thereby a step may be fitted up in any machine shop, and in cases where the concave is not cut or injured it should be made as near the size and shape of the original as possible. In cases where the concave is cut or worn out of shape so that it requires refitting the best results will be obtained by making the body of the step at least one-fourth of an inch smaller in diameter than the concave, and the radius for the same should be the diameter of a circle about equal to three-fourths of the diameter of the step. Steps that are too flat are more apt to drift to one side, while those that are too pointed are more apt to burn out.

Next to the step, the follower blocks that form a bearing for the shaft above the case are the most important and should be carefully attended to. Without this bearing it is not reasonable to expect that the wheel will long retain its central position in the curb, and when these are neglected and be-

(*Continued on page 201.*)

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(*Continued from first page.*)

come worn, so that the shaft does not fill the space, there is nothing but the step to depend upon to keep it in the centre of the curb and prevent it from wearing against it. These blocks should be looked after quite frequently, and set up so as to not only fit the shaft and prevent it from vibrating, but also to be sure that they are set up equally so as to keep the shaft always central. It would be an improvement upon all turbine wheels provided this bearing were made longer than is found in the average wheel, and as this part is subjected to so much wear, being at all times exposed to sand and grit with which the water in all streams is frequently filled, there is no good reason why they should not have more bearing surface. From 8 to 12 inches long would not be out of proportion; besides the greater the wearing surface the less liability there would be of cutting into the shaft.—*Mech. News.*

Correspondence.

Chicago Notes.

[FROM OUR REGULAR CORRESPONDENT.]

WESTERN OFFICE PAPER TRADE JOURNAL,
114-118 La Salle Street,
CHICAGO, March 3, 1890.

It has long been considered indecent for the conqueror to sit on the stomach of his fallen foe; and when in the course of human events a great city secures the world's fair there is a certain decency, if not magnanimity, in silence.

The ideal hero takes his honors, as he does his whiskey, straight, and, having wiped off his chin, so to speak, goes out at the side door and about his business, as though he were unconscious of the fumes that are gently tickling his brain.

Under such circumstances there can, however, be no harm in his casually remarking to a friend that he feels "pretty good," and if pressed upon the subject he may even assert that he "don't care a darn for the biggest thing alive."

These things are natural to man when the elation is upon him, and the man who does not know what to do with a "jag" when he's got one does not deserve the ability to get a "jag" when he wants one, or words to that effect.

On the other hand he must not forget that "all flesh is grass," and that life at the best is but a fleeting show in which the "posters" are very prone to prove the best part of the entertainment, and these thoughts should deter him from unduly sticking out his chest and voiding his tobacco juice on the doorstep of his competitor, simply because a combination of fortuitous circumstances has given him the right to play the host to the nations of the world and to have kings and princes sitting on his doorstep in their stocking feet and enjoying the lake breezes in the summer like any other citizen.

To scrape up the old primeval prairie and get things in readiness has taken him less than half a century, and he has scarcely had time to get the hayseed out of his hair, and it ill becomes him to put on airs and a plug hat and look as though he had ancestors, simply because a piece of luck has come his way; and yet when he turns out the gas and puts his head on the pillow who can blame him if he should casually remark to the wife at his side: "I'll be goldarned if I didn't wipe up the floor with those other three fellows."

Such remarks are not bragging; they're natural to a man.

These thoughts are indited in the State of Indiana and consequently there can be no news this week, nor can there be any statements as to what mill owners were in town, or as to whose business during the past month has been the heaviest in the history of their business.

The weather remains cool and pleasant.

LYSTER.

Holyoke Notes.

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, Mass., March 6, 1890.

The condition of the paper trade is unchanged and new features are few this week. Business is jogging along in much the same old way, with the product fairly well covered by orders. The supply of finished goods on hand is not remarkably large, and sufficient orders are coming in to keep it down to moderate dimensions. No particularly large orders are reported, but in the aggregate the bookings are fairly satisfactory. Fine writings and book papers are equally strong and prices rule about the same. No new features present themselves in the stock market.

Our neighbors at Springfield have decided to organize a board of trade; the preliminary steps have already been taken, and some of the prominent business men of the place have the matter in hand. Among those interested are: Elisha Morgan, H. S. Hyde, W. E. Wright, G. M. Stearns, E. B. Maynard, L. S. Stowe, James Kirkham, T. L. Haynes, C. E. Browne, C. E. Fuller, J. D. Gill, H. P. Stone, H. S. Phillips and many others. At a recent meeting a committee was appointed to propose a plan for the governing of the organization, and to recommend a constitution and by-laws. It is the intention of these men to secure permanent quarters in a central location, where business men can gather for the discussion of plans for the improvement of their community, and where strangers, who may come to the city to investigate the advantages offered, may be entertained. It is the intention of the members to do all in their power to promote local business interests, and to leave no stone unturned to induce manufacturers to locate permanently in Springfield. With such men as have already identified themselves with the board the movement ought to succeed.

This board of trade movement is something in which Holyoke should be deeply interested, for in no place in this State is the need of such an organization more keenly felt. This city has many natural advantages which most places do not possess, and there is plenty of room for quite a number of progressive manufacturers. It has frequently been said that our water power is exhausted, but such is not the case. There is sufficient day power left to accommodate a number of large mills, and, if necessary, the canals can be extended to make room for such manufactories. One would suppose that the Holyoke Water Power Company should be sufficiently interested in this matter to reach out after new industries and to do all in its power to build up the city. But it is doing nothing of the kind. The fact is a majority of the stock is held by Boston, Hartford and Springfield men, who care very little for this city or its interests, and as long as they can get satisfactory returns from their present investments they will do very little to induce newcomers to locate in the city. This is very unfortunate for Holyoke, and the wish is frequently expressed that Holyoke manufacturers might get control of the company and then something would be done. But, if the Water Power Company is satisfied to rest on its oars and to point to what it has done in the past toward developing the industries of this city, that is no excuse for the live, enterprising business men of this place. We need more railroads and better freight rates; we must have more industries which employ skilled workmen, and in order to secure these advantages good, solid inducements must be offered to those who are looking for better locations than they now possess.

Few people in this city fully realize how rapidly the paper industries of this busy place have developed in the past few years. It is not very long ago that the mills of this city were producing about 125 tons of paper a day, which was then considered a very good showing. What are they doing today? The twenty-five mills here produce about 225 tons every twenty-four hours, and some claim that it is even more than that. The number of hands employed in these mills is nearly four thousand men and women, and they earn about $130,000 every thirty days. The nominal capital invested in this great industry is placed at $4,000,000, but it is stated that the actual sum invested is more than twice that sum. There are also many industries represented here which are closely allied to the paper trade and which use more or less paper, and these employ seven hundred or eight hundred hands, to whom is paid $25,000 or more each month, and the amount invested in the business will exceed $300,000. This is a very gratifying showing, and it goes to prove that we have justly earned our title of the Paper City of the World.

The corporation return of the Nonatuck Paper Company is as follows: Fixed capital, $70,000; capital paid in, $70,000. Assets, real estate, land, water power, buildings and machinery, $17,500; cash and bills receivable, $73,126; manufactures and merchandise, $66,827; total, $314,953. Liabilities, capital stock, $70,000; debts, $119,953; profit and loss and reserve for depreciation, $125,000; total, $314,953.

A young woman employed in the rag room of the Parsons Paper Company's Mount Tom Mill made one very good day's pay this week. She found $100 while sorting a lot of rags.

Edward Findlay, for two years superintendent of the Winona Paper Company's mill, has gone to Quebec to take a similar position in a mill at a salary of $4,000 a year. John M. Rutt, master machanic, has also resigned. Frank E. Carpenter is acting as superintendent temporarily.

W. W. Wilson, master mechanic at the George R. Dickinson Paper Mill, bought this week a very pretty cottage at Oakdale, one of the growing suburbs, for $3,200.

William Armstrong, employed at the Chemical Paper Mill, met with a painful accident one day this week. He was employed near a rag machine when his hand was caught in a gear, crushing several fingers.

We are having a regular "northeaster" snow storm to-day, which in many respects reminds us of the terrible blizzard of two years ago. History has also repeated itself, as "Old Prob." failed to notify us of its coming.

H.

Boston Notes.

[FROM OUR REGULAR CORRESPONDENT.]

EASTERN OFFICE PAPER TRADE JOURNAL,
67 Federal street,
Boston, March 6, 1890.

The Thomas Rice Paper Company has succumbed to the changed conditions of the paper making industry and has assigned.

The assignment was made to George W. Morse, attorney, 28 State street, Monday of this week, and a meeting of the creditors will be held at the attorney's office next Monday. The merchandise liabilities are about $20,000, most all of which is due to Boston firms. The assets consist of the plant, mill machinery, water power, &c., which is valued at $48,000 and upon which is a mortgage of $14,000. Stock on hand, consisting of paper stock and supplies and finished paper, is valued at $8,000. A detailed statement of the company's affairs is being prepared and will be presented to the creditors at the meeting next week.

The mill of the Thomas Rice Paper Company is located some 10 miles from Boston, at Newton Lower Falls, and has run on book papers, manilla and news with a daily capacity of 2 to 3 tons. The cause of the failure is shown in its limited product, for in these days of close competition a 2 or 3 ton mill must be most favorably situated to realize a profit on its business.

This failure of itself is of small consequence, but it points a moral, and that is that the time for such small mills is near to an end.

Time was when this little mill was of some importance, it being among the first to make paper by machinery in Massachusetts and for years and until recently supplied a Boston daily of limited circulation. For over a generation the mill was run by the Thomas Rice Paper Company, and with financial success; but conditions have changed in recent years and new parties have of late been running the mill. Dana Estes and W. M. Jackson, of Estes & Lauriat, Boston publishers, are president and treasurer respectively, although it is stated that Mr. Estes resigned his position some few months ago. The publishers became interested in the mill about four years ago with the view, no doubt, of making paper for their own special use, but the economies of manufacture which large mills are able to introduce made it possible for the publishers to buy their paper in the open market for less money than the paper could be produced at their own mill.

This mill is not an exception, for there are several small mills known to the writer which have a hard time in making both ends meet, and it is only a question of time when these mills must shut down—the margin of profit on paper is not large enough to keep a 2 or 3 ton mill running without a loss.

And yet the demand for paper is constantly increasing, and while prices are low large mills are making money. Commenting upon this subject with a prominent Boston manufacturer the other day that gentleman stated that he shipped from one of his mills during January 2,600,000 pounds of paper, which was 400,000 pounds more than the capacity of the mills, so that the reserve product had to be drawn on to meet the demand. "Prices," said the manufacturer, "seem to be on bottom, and this is so well understood by buyers that no effort is made now to shade prices."

Conditions relative to the paper stock market are unchanged. Business moves to some extent, but it takes considerable effort to move it. Present prices are about the same as have been ruling for months past. Imports are restricted to actual wants, so that stocks are moved as fast as received, although the receipts are not large.

The receipts of paper stock for the past seven days are a little above the average, and comprise a total of 4,675 packages, which includes 1,597 bales rags and 1,682 bales of manillas.

The receipts of chemicals include 824 casks of bleaching powders, 1,121 drums of caustic soda, 564 casks, 2,060 bags of soda ash and 380 barrels of soda crystals.

The chemical market is getting interesting, owing to labor complications abroad. First there is a threatened strike in the coal mines, and this will affect the production of chemicals; then the trouble among the dockmen of Liverpool is mentioned as retarding shipments. Bleaching powders to-day are very firm at 1.40@1.45c.; very little on spot and only a small lot is expected to arrive inside of the next two weeks, so that higher prices may be realized by such dealers as may be able to fill an order next week. Caustic soda is firm and nothing to be had under 2.65@2.70c. Soda ash is quoted at 1.40@1.45c. and alkali at 1¼c., with prices firm and spot supplies limited. Soda crystals still hold at .97½@1c.

H. T. Bartow, of Perkins, Goodwin & Co., New York, was in town this week—his first visit to Boston for some time—and he met with a warm welcome from his many Boston friends, who were glad to know that he got the better of the grip.

Stone & Forsyth, paper dealers, have just issued a neat and handy catalogue of the

THE GLEN MFG. CO., OFFICE: 244 WASHINGTON STREET, BOSTON, THE HAVERHILL PAPER CO.,
DAILY PRODUCT: 80,000 Pounds Finished Paper. News Paper and Wood Pulp. DAILY PRODUCT: 80,000 Pounds Wood Pulp—Dry Weight.

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HOLLINGSWORTH & VOSE, 44 FEDERAL ST., BOSTON, MASS.,
MANUFACTURERS OF
PURE MANILLA ROPE PAPER.
Z. T. HOLLINGSWORTH. Mills at West Groton and East Walpole, Mass. Daily Capacity, 22,000 pounds. CHARLES VOSE.

PERKINS, GOODWIN & CO.,
Nos. 66 and 68 DUANE STREET, NEW YORK,
Have on hand and to arrive all grades of Bleached and Unbleached
SULPHITE AND SODA PULPS. SEND FOR SAMPLES AND PRICES.

many specialties for which the firm is New England agent.

Winter has set in at last. It came in with March, and more snow has fallen during the past six days than during the past three months. DELESDERNIER.

Apparatus for Recovering Alkali.

An illustration is given of a furnace for recovering soda from the caustic liquors used in paper or paper pulp mills which, it is claimed, is more simple and cheaper in construction and repaired at less expense, labor and delay than the furnace heretofore used.

This furnace has a central longitudinal flue extending from the fire grate at the front of the furnace to the rear thereof and communicating with uptake flues which lead from the sides of the furnace to a common central chimney or outlet, and a removable pan or tray resting on longitudinal walls or supports at the sides of the furnace and immediately above the fire grate, so that the entire bottom of the tray is subjected to the action of the heat and other products of combustion as they pass from the grate to the chimney. This tray or pan is designed to contain the caustic liquor to be evaporated and is removable from the furnace through a suitable opening at one end, which is closed by a door when the furnace is in use. At the opposite rear end of the furnace is an opening located between the divided uptakes or flues and beneath the outlet or chimney, through which opening the soda alkali can be readily withdrawn by a suitable implement without removing the pan or tray from the furnace, and this end of the tray is inclined or sloped upward from its bottom, so that it terminates on a level with the lower edge of the opening, whereby the removal of the soda is facilitated and the escape of the liquor from the pan is prevented. The furnace has a suitable steam outlet for the escape of the steam and gases generated during the evaporation of the liquor, and on top of the furnace there is a tank which has communication by an intermediate valved pipe which runs through the top of the furnace or by any other suitable means with the interior of the furnace, so that the liquor to be evaporated can be expeditiously and readily supplied to the evaporating tray or pan.

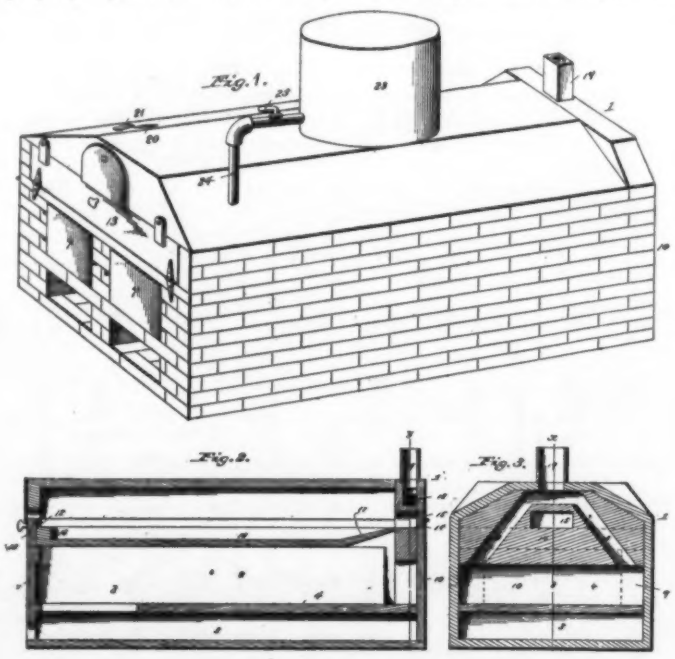
Figure 1 is a perspective view, Fig. 2 a vertical longitudinal sectional view on the plane indicated by the dotted line *x x* of Fig. 2, and Fig. 3 is a vertical transverse sectional view on the line *y y* of Fig. 2 of this apparatus.

The furnace, 1, is divided longitudinally into an upper combustion chamber, 2, and an ash pit, 3, by a horizontal wall, 4, located a short distance above the bottom of the furnace, and extending from side to side thereof and from front to rear. At the front of this horizontal division wall, 4, there is a fire grate, 5, of any preferred construction, fuel to which can be supplied through suitable openings, 6, which are closed by doors, 7. Above this horizontal wall, 4, and the grate, and on opposite sides of the furnace, longitudinal supports or walls, 8 9, are arranged, extending from the front of the furnace through the combustion chamber, 2, nearly to the rear wall, 10, of the furnace, and on these walls or supports is placed the evaporating tray or pan, 11, which is of such dimensions as to extend the entire length of the furnace and from side to side thereof, for the purpose of securing as great an area or surface as is possible with a furnace of given dimensions. This tray or pan is adapted to be inserted in or removed from the furnace with ease and facility through an opening, 12, in the front of the furnace on the same horizontal plane as the pan or tray, which opening is closed by a door, 13, having suitable fastening devices; and in the opposite rear end of the furnace there is another opening, 14, also on the same horizontal plane as the tray or pan, through which the soda can be expeditiously removed by a suitable implement after the liquor has been evaporated without requiring the removal of the pan or tray from the furnace. This opening is adapted to be closed by the door 15.

The evaporating tray or pan is provided around both of its sides and at one end with a continuous raised rim, 16, to retain its contents, and at the other end of the tray its bottom is inclined gradually, as at 17, to the plane of the upper surface of the raised rim, whereby the upper extended end of the bottom of the tray lies flush with the lower edge of the opening 14 when the pan is properly adjusted in the furnace. By this construction the soda can be drawn without waste from the tray through the opening 14 by means of a suitable implement and without necessitating the removal of the tray from the furnace.

In the rear end wall of the furnace, above the combustion chamber 2, two converging uptakes or flues, 18, are provided, which are arranged on opposite sides of the opening 14 and meet or open into a common vertical outlet or chimney, 19, at one extremity of the longitudinal centre of the furnace, the lower extremities of these uptakes or flues communicating at all times with the combustion chamber 2 of the furnace.

In the top of the furnace, near the front thereof, there is an outlet port, 20, for the escape of the steam and gases generated during the process of treating the caustic liquor, and over this port is arranged a valve plate, 21, for opening or closing the same. The port is of sufficient size to permit lime in lumps or masses to be introduced into the furnace for the purpose of securing a better quality of soda.



APPARATUS FOR RECOVERING ALKALI.

The top of the oven is preferably made flat, and on it is placed a tank, 23, which communicates with the interior of the furnace, as, for instance, by means of a pipe, 24, having a cock or valve, 25. This tank is designed to receive the liquid to be treated, and by it the necessary quantity of liquor can be expeditiously and conveniently supplied to the furnace.

The caustic liquor is placed in the tank, and from the latter is fed to the evaporating tray or pan through the intermediate pipe connection. The fire having been started in the combustion chamber, the heat and products of combustion pass through the chamber to the uptakes or converging flues and along the entire bottom surface of the tray or pan, which is thereby heated very highly. The liquor contained in the pan or tray is rapidly evaporated, the steam and other gases escaping through the port 20, and the vegetable and other deleterious substances are calcined or burned out of the soda, after which the latter can be expeditiously withdrawn from the tray through the opening 14.

If it is desired to obtain a better quality of soda with a whiter color than can be secured by merely evaporating the liquor, unslaked lime of good quality can be introduced into the tray through the port 20 before the liquor is evaporated, and thus secure the addition of the lime during the process of recovering the soda from the spent caustic liquor.

This furnace is said to be very much simpler and cheaper in construction than the furnaces heretofore and at present in use for recovering alkali from spent liquors of paper and fibre mills, and to effect a very material economy in the quantity of fuel and cost of recovering the soda alkali. The parts are not liable to get out of order, are easily repaired at a slight cost, and the tray or pan can be replaced by another at a trifling cost when it has become worn to such an extent as to be no longer useful.

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Fine Manilla and Colored Paper.

GENERAL DEALERS IN

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I can handle ten to twenty tons good News in sheets and rolls per day for first-class mill, and solicit correspondence from all manufacturers having papers to sell.

G. H. WHITTEMORE,

11 TRIBUNE BUILDING, NEW YORK,

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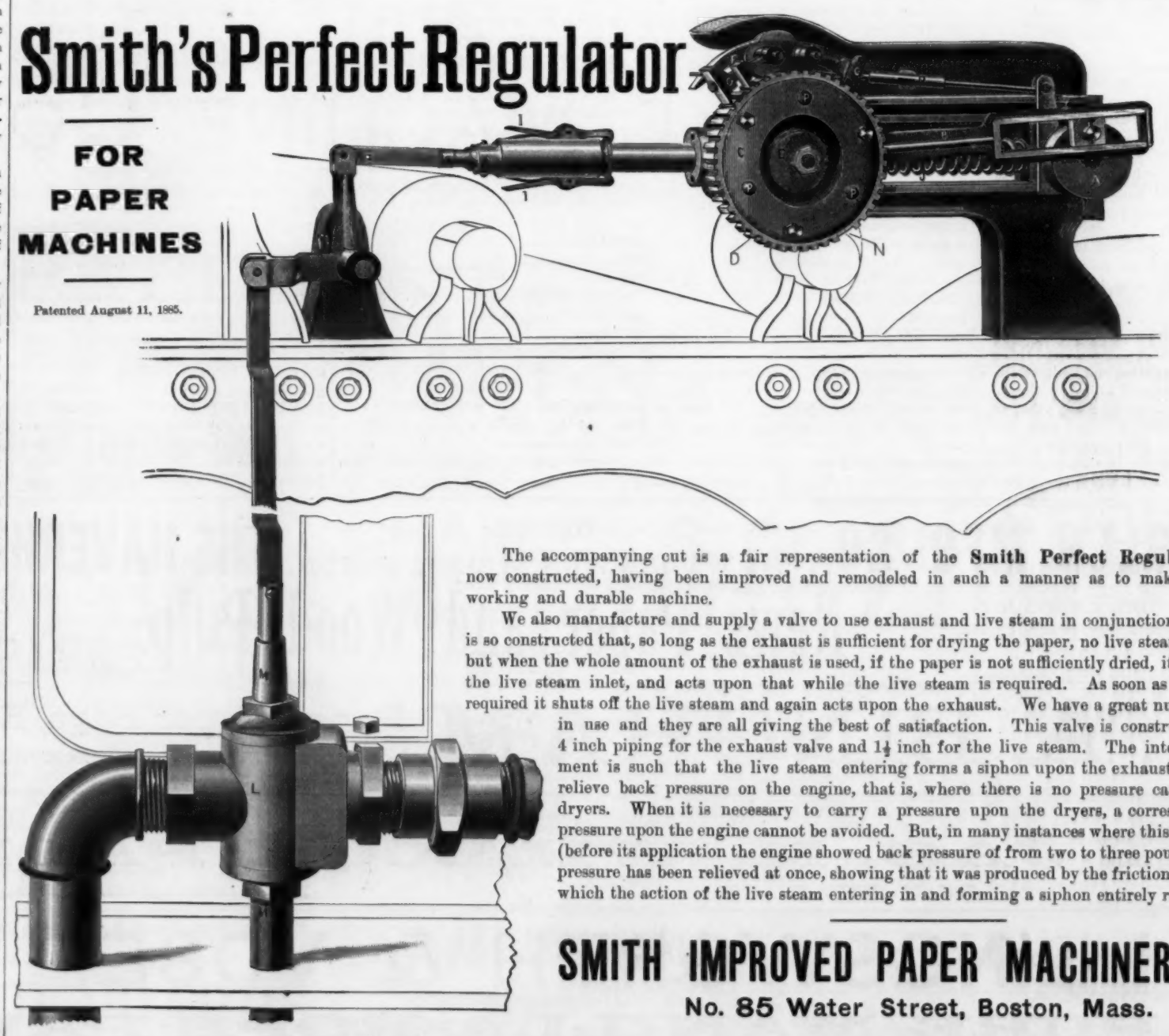
PAPER MANUFACTURERS' Agent.

Smith's Perfect Regulator

FOR PAPER MACHINES

Patented August 11, 1885.



The accompanying cut is a fair representation of the **Smith Perfect Regulator** as it is now constructed, having been improved and remodeled in such a manner as to make it a perfect working and durable machine.

We also manufacture and supply a valve to use exhaust and live steam in conjunction. This valve is so constructed that, so long as the exhaust is sufficient for drying the paper, no live steam is admitted, but when the whole amount of the exhaust is used, if the paper is not sufficiently dried, it then operates the live steam inlet, and acts upon that while the live steam is required. As soon as it is no longer required it shuts off the live steam and again acts upon the exhaust. We have a great number of these in use and they are all giving the best of satisfaction. This valve is constructed to use a 4 inch piping for the exhaust valve and 1½ inch for the live steam. The internal arrangement is such that the live steam entering forms a siphon upon the exhaust, and tends to relieve back pressure on the engine, that is, where there is no pressure carried upon the dryers. When it is necessary to carry a pressure upon the dryers, a corresponding back pressure upon the engine cannot be avoided. But, in many instances where this has been used (before its application the engine showed back pressure of from two to three pounds), the back pressure has been relieved at once, showing that it was produced by the friction in the piping, which the action of the live steam entering in and forming a siphon entirely removed.

SMITH IMPROVED PAPER MACHINERY CO.,

No. 85 Water Street, Boston, Mass.

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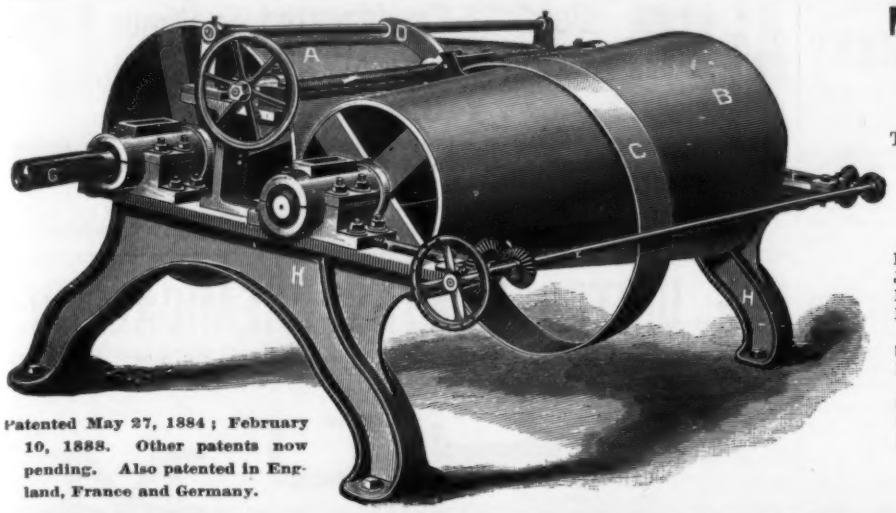
☞ *CORRESPONDENCE SOLICITED.* Mitscherlich Process. DETROIT, MICHIGAN.



Patented May 27, 1884; February 10, 1888. Other patents now pending. Also patented in England, France and Germany.

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For REGULATING and CHANGING THE SPEED of PAPER MACHINERY.

The machine can be stopped or started by simply turning a hand wheel to open and close the Cones. The speed can be quickly and easily varied while running from 100 to 200 feet per minute. They are

PROMPT, EFFICIENT AND NOISELESS.

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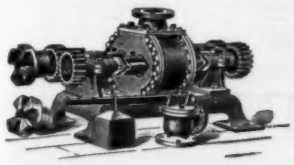

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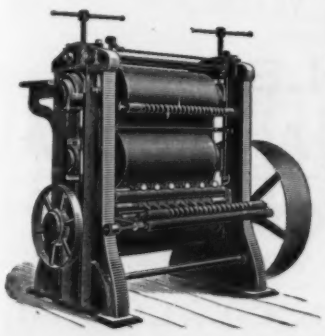

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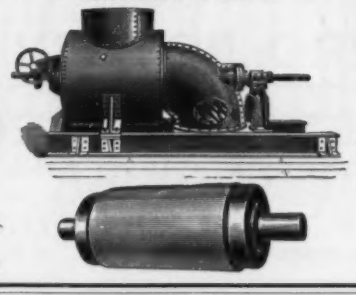

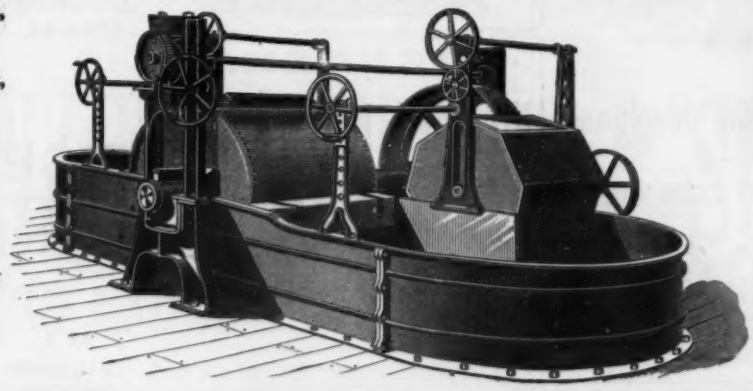

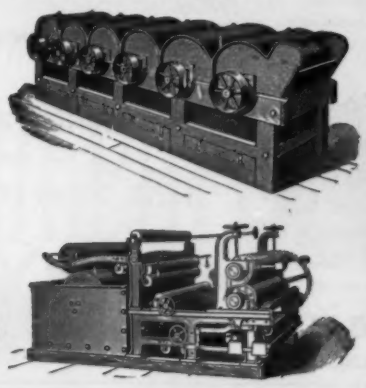

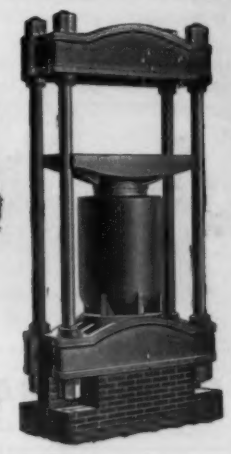

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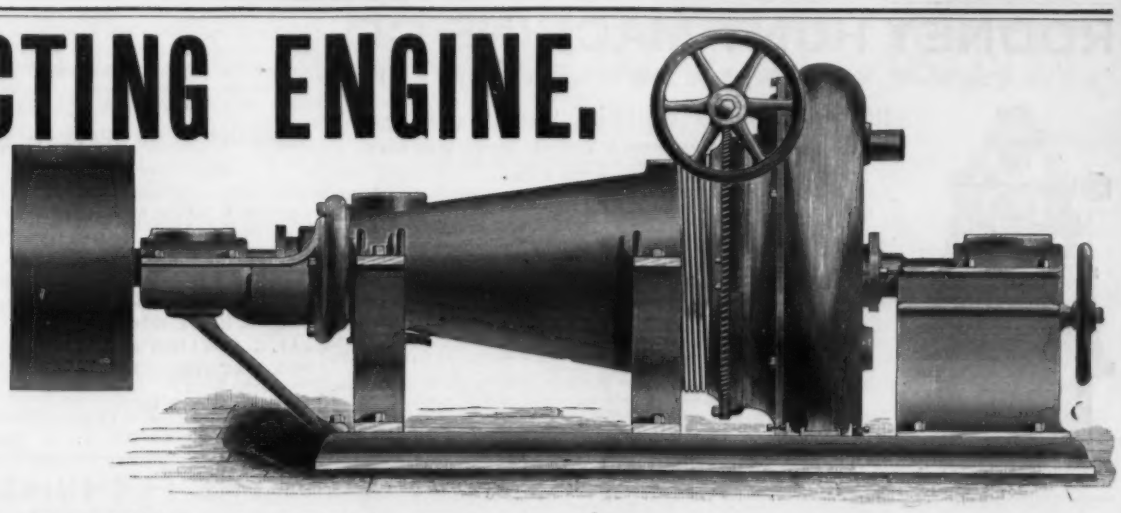

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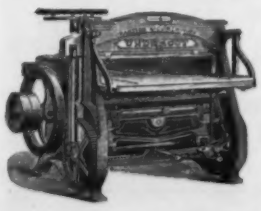

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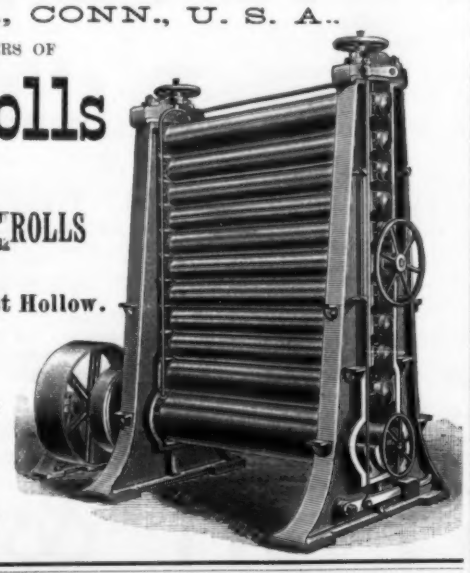

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Rolls Bored for Steam or Cast Hollow.

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Lift Rods operated by wheels above for raising any number of the rolls.

Housings so made that the rolls may be taken out endwise through frame.

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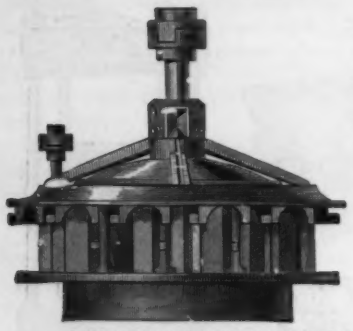

This Wheel is strong and durable. Excelled all other wheels in the great trial tests. Is in use all over the nation. I also make a specialty of

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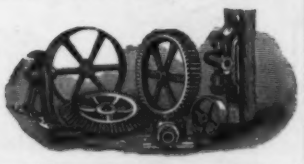
PAPER, COTTON AND GRIST MILLS.



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54 inch wheel tested in mill, after running two years,	.8430
36 inch wheel at Holyoke Testing Flume,	.8516
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30 inch wheel at Holyoke Testing Flume (another wheel),	.8789
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30 inch wheel at Holyoke Testing Flume.

Proportional quantity of water, .762, one-half gate opening,	.7642
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Used in many of the largest Paper and Pulp Mills in the United States. 6,000 horse power furnished one mill, 7,000 to another, and one manufacturer 69 wheels.

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KNOT BORERS,

Slab and Edging Barkers,

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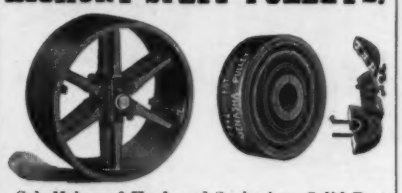

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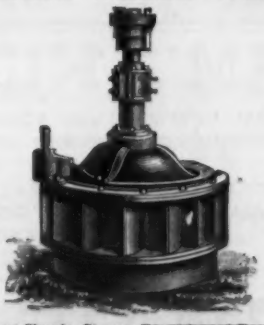

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An Advancing Market for Alkalies.

Since the beginning of the year there has been a steady though gradual advance in the market prices for soda ash and caustic soda, and there is no indication yet that the top of the market has been reached. In fact, if present indications hold good, prices will be much higher during the balance of 1890 than they have been at any time within many years. Apart from the fact that the manufacturers are tired of losing money in unprofitable competition, there are several good reasons for the upward movement of prices, and but for the fact that there are two distinct processes of manufacture, between the exponents of which competition is extremely active, the rise would no doubt be greater and would have come sooner.

The chief reason for the advance is found in the increased cost of salt, owing to the control exercised over that commodity by the Salt Union of Great Britain. To some of the larger alkali makers this in itself would have been of no consequence since they are independent of the combination, having salt wells of their own, but to the smaller concerns, whose product in the aggregate makes up the bulk of the supply of these chemicals, the restriction placed upon them by the advance in the cost of salt is a very serious matter. The old process men feel this more keenly than their competitors who use the newer method of manufacture, but to either class of producers the increased cost of raw material is a most potent reason why they should get more money for their product. A second reason is found in the advance in the price of fuel, and a final reason for some of the makers, and will probably soon be to all, is the higher cost of labor.

If there are so many good reasons for the advance the opportunity to make it with the best results is not lacking. For the past three or four months, but particularly since the beginning of the current year, the demand for soda ash and caustic soda has been unprecedentedly large. The consumption all over the world seems to have increased enormously. In this country, although the receipts have increased over 10 or 12 per cent. during the past two months, and the supply has been increased by the added output of domestic factories, it is almost impossible to secure anything for prompt or early delivery, and many of the manufacturers have their product for several months to come under contract. At the present rate of consumption it seems likely that there will not be enough stock of soda ash to supply all requirements by the time spring weather arrives, and caustic soda is in almost the same position.—*Oil, Paint and Drug Reporter.*

Peroxide of Hydrogen.*

By C. T. Kingzett, F.I.C., F.C.S.

Peroxide of hydrogen is at once an extraordinary and a most interesting compound—extraordinary as regards the modes of its preparation and interesting on account of the facility with which it loses oxygen. It is this facility of decomposition which renders it so valuable as an oxidizing and bleaching agent, but at the same time has in the past militated against its more extensive adoption for such purposes. For a long time it has been recognized that if means could be devised of preserving this substance from spontaneous decomposition to any considerable extent its market value would enormously increase, for while it is without rivals as an antiseptic oxidizing agent, it is also of a perfectly innocuous character and free from all objections. Peroxide of hydrogen has been with me the subject of much study, and, as is well known, I have for many years been engaged in the manufacture of compounds containing it or capable of yielding it in association with other substances under definite circumstances.

In connection with this part of my subject it may be mentioned by way of a summary statement that when terpenes are subjected to oxidation by air, oxygen or ozone, there is formed an active organic compound of the nature of a peroxide which remains dissolved in the hydrocarbons used for producing it, and when the product is placed in contact with water peroxide of hydrogen is formed and passes into aqueous solution by some reaction of which the following equation may be accepted as giving, if not the actual reaction, at least an approximately correct representation:

$$C_{10}H_{16}O_2+H_2O=C_{10}H_{16}O_3+H_2O_2.$$

The compound $C_{10}H_{16}O_3$ (soluble camphor) is uncrystallizable and accompanies the peroxide of hydrogen in the aqueous solution.

There is a great similarity between this chemical change and that by which the peroxide of hydrogen is made by the other well known process, viz., by the action of dilute acids upon peroxide of barium. Taking sulphuric acid as representative of all acids, it may be said that when peroxide of barium is exposed to the presence of sulphuric acid and water the following change results:

$$BaOO+H_2OSO_3=BaOSO_3+H_2OO.$$

It will be understood, of course, that I have here resorted to the use of somewhat abnormal formulæ in order to clearly represent what I believe to be the nature of the chemical change, and I have intentionally expressed peroxide of hydrogen by the formula H_2OO for reasons to which I am about to make reference.

To pass on now to the chief part of my subject, it should be first stated that, while peroxide of hydrogen is undoubtedly very prone to suffer decomposition, the statement which is made in most text books to the effect that dilute solutions are immediately decomposed on ebullition is radically wrong. It is, therefore, all the more to be regretted that this method has been advocated for estimating the strength of the liquid. As a matter of fact, dilute solutions may be concentrated by evaporation, although, of course, there is an attendant loss of oxygen.

G. E. Davis at one time published some figures illustrating the rate of decomposition of a solution of peroxide of hydrogen, but before reproducing these it may be as well to explain the meaning of a description which is common enough in commerce; I refer to the strength of such solutions as expressed in volumes. A 10 volume solution of peroxide means a solution which is capable of yielding of itself, by perfect decomposition, ten times its own volume of gaseous oxygen at the ordinary temperature and pressure.

Now, Mr. Davis worked with a 10 volume solution, so that 100 cc. yielded 1,000 cc. of oxygen when fully decomposed; in other words, the solution contained 3.04 per cent. by weight of real peroxide of hydrogen, and was capable of yielding 1.43 per cent. by weight of oxygen gas.

On August 2, 1878, the strength of the solution was 9 volumes.

On August 9, 1879, the strength of the solution was 8.4 volumes.

On August 24, 1878, the strength of the solution was 8.0 volumes.

On September 1, 1878, the strength of the solution was 7.6 volumes.

On September 24, 1878, the strength of the solution was 7.9 volumes.

On October 24, 1878, the strength of the solution was 7.2 volumes.

I shall presently furnish other figures from my own experience, but may at once state that the rate of decomposition is by no means constant. It varies with the temperature, exposure to light and the impurity of the solution. Sometimes a solution will be found to suffer even less change than that observed by Mr. Davis, while at others it undergoes complete decomposition in course of a few weeks, and more or less suddenly. The observations I have made will serve to explain to some extent the reasons for this capricious character.

To those engaged in the manufacture of peroxide of hydrogen it is well known that the presence of a little ether restrains the decomposition, and, indeed, in his experiment Mr. Davis found that by adding a little ether to the solution on October 24 it had not deteriorated in strength two months later in the year. The action of the ether is not, however, always to be depended upon, and its presence is apt to lead to danger, particularly if added to solutions which are likely to be exported to hot climates, while it is sometimes objectionable on other grounds also. I have suggested that the restraining influence of ether is to be found in the fact that it also generates peroxide of hydrogen by atmospheric oxidation. It may also act by reason of its volatility, thus generating a vapor which exercises a restraining pressure over the solution.

Dr. G. Gore has shown, in a paper recently communicated by him to the Royal Society, that when chlorine water is exposed to light the chemical changes that occur in one distinct period result in the production of hydrochloric, hypochlorous and chloric acids, and that at a later stage a further formation of hydrochloric acid takes place, while at the same time peroxide of hydrogen is formed in solution. Under the influence of prolonged sunlight, the whole of the oxygen of the hypochlorous and chloric acids united with water to form the peroxide, and that substance subsequently entered into combination with the whole of the hydrochloric acid and formed a definite "solution compound," which is represented by the formula $2HCl, H_2O_2$. This is the more interesting because it is well known that, as a bleaching agent, chlorine acts intermediately by the decomposition of water, and it is nascent oxygen that is credited by chemists with the bleaching effects thus attainable. It is, after all, not impossible that the effects are due to the formation of peroxide of hydrogen—a substance which is, as a bleaching agent for woolen and some other goods, rapidly displacing bleaching powder in public estimation.

I now propose to call attention to the decomposition and preservation of peroxide of hydrogen as influenced by the presence in it of other substances in a state of solution.

After surmounting many difficulties, into the details of which I need not enter here, I was faced with what proved to be the greatest obstacle of all, viz., the liability of such solutions when prepared to undergo decomposition, and that sometimes with almost explosive violence.

As I felt there was no royal road to success and no scientific clue to a means of overcoming the trouble, I determined to study the matter in a constructive sense and to ascertain, over long periods of time, the preservative or destructive influences which might be exercised by dissolving, in solutions of peroxide of hydrogen, definite percentages of various substances.

It was upon the basis of these and other results of a like character, and having regard to the mode of preparation of the crude article, that I have been enabled to devise satisfactory means for preserving peroxide of hydrogen as presented in commerce from any appreciable loss of strength over reasonable periods of time.

In those cases in which it has been ascertained that certain substances facilitated the decomposition of peroxide of hydrogen there is a great range of activity; and in the operations of bleaching these facts admit of practical utilization. As a rule, some alkaline compound such as ammonia or carbonate of sodium is used to promote the operations, but they act too violently and cause much loss of oxygen, thus adding to the expense of the process.

With respect to the use of peroxide of hydrogen for bleaching, a summary statement will suffice. It has been used and is being used with success for bleaching wool and woolen goods, silk (particularly tussah), ostrich feathers, living and dead human hair, sponges, ivory, bone, wash leather, horn, gut, wooden articles, and so forth. It may also be employed for bleaching cotton, fine yarns and textiles, but not so successfully as for woolen goods. For such bleaching purposes tanks or vessels of wood, glass or earthenware are employed. Metallic vessels have to be avoided. The general method of procedure consists in freeing the articles from dirt and grease by washing them with ammonia water or with dilute soda or carbonate of soda, and after having

* Part of a paper read before the London section of Society Chemical Industry, January 6.

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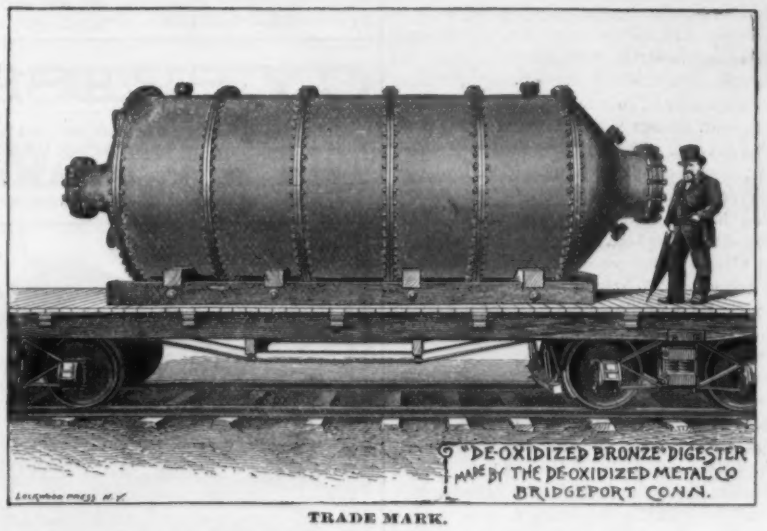

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thoroughly rinsed them out they are immersed in the solution of peroxide of hydrogen, sometimes used of 10 volume strength and at other times of only 2 volume strength; frequently ammonia or some other alkali is added to the solution of peroxide in order to facilitate the bleaching.

The operation of bleaching is generally carried out at a temperature of about 30° to 50° C., heat being employed in the form of steam carried through a leaden coil immersed in the bath.

As I have previously pointed out, the addition of an alkali in order to hasten the effect is made at the expense of using an extra amount of peroxide, and in my opinion borax would replace it to advantage where it is necessary to employ any such agent for facilitating the operation.

In the discussion which followed the reading of this paper Mr. Kingzett was asked if he could give some data as to the monetary value of oxygen as an oxidizing agent. They would thus be able to judge whether bleaching as performed by hydrogen peroxide would be cheaper or dearer than when due to bleaching powder or other oxidizing agent.

In reply he said that he was not able to give any exact data. Air is cheap enough, but it is not capable of producing those decolorizing and oxidizing effects which have to be obtained in the commercial bleaching of silk, cotton, paper, bone, hair, &c. Atmospheric oxygen, therefore, has not value in relation to such applications, nor is pure oxygen any more valuable, so far as he knew. Hydrogen peroxide, and that alone, has a distinct value for such purposes. With regard to bleaching powder, he had stated in his paper that peroxide of hydrogen was, so far as Germany and France were concerned, believed to be rapidly replacing bleaching powder for bleaching woolen, silk and other goods, partly in consequence of the destructive effect of chloride of lime on the tissues of such materials, and also because peroxide of hydrogen gave better results. He believed that the adoption of peroxide would follow more largely in England in time; and as to the comparative cost, the results which had been published justified him in saying that peroxide of hydrogen was not more expensive than bleaching powder for such purposes, while its production was constantly being cheapened and its effective action increased.

Aluminum and Its Properties.*

ALLOYS OF ALUMINUM AND COPPER.

Ten per cent. of aluminum with 90 per cent. copper (called 10 per cent. aluminum bronze) rolled into plates has an elastic limit of 70,000 to 80,000 pounds per square inch, a reduction of area of from 20 to 40 per cent., with an elongation of from 5 to 10 per cent. in 8 inches. The metal is a beautiful yellow color, and susceptible of taking a fine polish. One great advantage of the metal is its freedom from corrosion from the action of the air, either moist or dry, or water upon it. Its specific gravity in castings is about 7.84 and in rolled sheets about 7.89. Its modulus of elasticity is about 18,000,000 pounds. In castings it has a tensile strength of between 70,000 and 80,000 pounds per square inch, with a reduction of area of about 20 per cent.

Compression tests upon 10 per cent. aluminum bronze three-quarters of an inch diameter and 2 inches long gave an ultimate compressive strength of 160,000 pounds per square inch, the specimens being shortened by a quarter of an inch. A similar piece of 5 per cent. bronze was shortened to 1⅛ inch, and gave an ultimate compressive strength of 153,000 pounds per square inch.

Five per cent. aluminum bronze in tension has an elastic limit of about 50,000 pounds per square inch; a tensile strength of about 70,000 pounds per square inch; a reduction of area of from 30 to 50 per cent. Its specific gravity is from 8.20 to 8.30. Two and a half per cent. aluminum bronze has a specific gravity of 8.6. The melting point of 10 per cent. aluminum bronze is about 1,700° Fahr., a little higher than that of ordinary brass. The metal shrinks a little less than one-eighth of an inch to the foot, or a little less than ordinary brass. It solidifies very rapidly from the molten condition and it is necessary to pour it very quickly. The feed gates should be made large enough to prevent the metal freezing. Hot baked sand molds should be used for casting.

Precautions should be taken also to prevent oxidation of the metal, for without it the oxide is carried into the metal, which prevents its rolling into sheets. It is well also to bottom pour the metal into the mold—that is, to cast the metal into a hot ladle, having a nozzle in the bottom in direct connection with the gate of the casting, allowing the metal to settle, so that the oxide and dross shall come to the surface, in this way preventing its entering into the castings below. The surface of the molten bath should be kept covered with powdered charcoal. It is also advantageous to keep the bath covered with a flux in some cases, although the disadvantage of this is that the flux is apt to cut the sides of the pot and add silicon to the metal. It is well to tap the metal in an inert atmosphere (casting in a cloud of smoke or the like) to prevent the oxidation from the air in the mold attacking the metal.

Aluminum bronze is an extremely dense, close metal. It can be worked at a bright red heat as easily as can wrought iron. In this respect it differs from all other forms of bronze, which are red short at a red heat. The fact that aluminum bronze is malleable at a red heat, and stands this temperature without change, makes it especially adaptable for blast furnace tuyeres. The metal can be hardened to a considerable extent by working without annealing. To anneal aluminum bronze, heat to a dull red heat and permit it to cool gradually.

The alloy of aluminum and copper does not volatilize at any ordinary temperature used in fusing it, and consequently it can be frequently remelted without any appreciable change in the chemical constituents of the metal. This has great advantages in the economic use of the metal, as the scrap in castings or rolling can be readily remelted into ingots of the same quality metal.

Aluminum bronze can be brazed as well as any other metal, using as a solder: Zinc, 50 per cent.; copper, 50 per cent., using one-quarter of the solder and three-quarters borax and cryolite in equal parts. With pure aluminum as now manufactured, very pure aluminum bronze alloys can readily be made, the impurities in the aluminum being reduced to one-tenth their amount on being diluted with pure electrolytic lake copper.

ALUMINUM IN WROUGHT IRON.

The influence of aluminum in making wrought iron fluid has been taken advantage of in the well-known Mitis process of making castings of wrought iron. Aluminum will also increase the tensile strength of wrought iron and improve the fibre, if added either as pure metal or in the form of ferro aluminum to the molten bath, just before the metal comes to nature in the puddling furnace.

ALUMINUM IN CAST IRON.

The influence of aluminum in cast iron is to turn the combined carbon to graphite—that is, to make the white iron gray and also to close the texture of the metal. (W. J. Keep.) It makes the metal ordinarily more fluid and it also makes it susceptible of taking a better polish and retaining it free from oxidation. Aluminum will also increase the tensile strength of many grades of cast iron and aids in obtaining sound castings free from blowholes. It has been used in preparations from one-tenth of 1 per cent. to 2 per cent. with good results, with various grades of iron.

ALUMINUM IN STEEL.

The influence of aluminum in steel of high carbon is to turn the carbon combined into graphite, and destroys the hardening action of the carbon in tool steel. Aluminum in this sense softens steel. In structural steel of 20 per cent. carbon a small amount of aluminum, up to 1 per cent., increases the tensile strength without to any great degree decreasing the ductility. By its aid a higher tensile strength can be obtained in thick sections of steel which have been subjected to but little work than can be otherwise obtained; although aluminum with considerable quantities of graphitoidal silicon have been added to steel, no graphitoidal silicon has been found in the steel afterward, it being all found in the amorphous or combined state in the resulting steel. The influence of aluminum also is to lower the melting point of the steel and in this way make it more fluid. Its influence, also, is to make the ingots of steel more solid and free from blowholes. It can be most advantageously used in proportions of from one-tenth of 1 per cent. up to 3 per cent of aluminum.

* From a paper read at the Washington meeting of the American Institute of Mining Engineers.

Paper in Tonkin.

In the environs of Hanoï, at the western extremity of the great lake, are situated the most important factories of native Tonkin paper. The French designate the site of this industry "the paper village." Two-thirds of the population, comprising about one hundred and fifty families, are employed in the manufacture. Tonkinese paper is made from the bark of a tree which grows abundantly in the province of Tuyen-Quan. This bark, arriving in bundles at Hanoï, is submitted to a series of preparations which transform it into a paper much similar to that made in China; the pulp is not quite so fine and the color duller. The bark of the *cây giây* is put first to steep in the water of a river running through the locality, and after two days is taken out and separated by the hands of the workers. This over it requires another steeping of forty-eight hours in a reservoir of water, saturated with lime, whence it comes out softened and without much of the brown tint it had acquired during its first bath. It is then placed in alternate layers of bark and ashes of rice straw in a conical shaped furnace of loam whose lower part is open o allow of the admittance of heat from a grate beneath, which is fed by rice straw, the combustible most commonly employed for the purpose. This cooking is continued for several days, when the stuff, thoroughly baked, is withdrawn, washed in much water and mortared in a granite mortar with a hardwood pestle.

New Patents.

No. 414,679. Paper Bag.—Edward E. Claussen, Hartford, Conn., assignor of one-half to William A. Lorenz, same place.

REISSUES.

No. 11,041. Paper Cutter.—Frederick W. Drosten, St. Louis, Mo. Filed May 20, 1889.

No. 11,042. Paper Cutter.—Frederick W. Drosten, St. Louis, Mo. Filed May 20, 1889.

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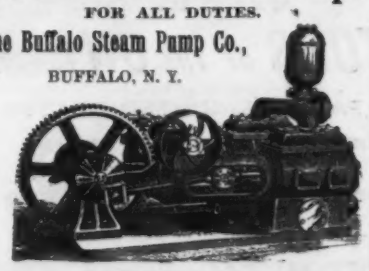

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Cable Address: "RAGS, MANCHESTER."

Imports and Exports.

IMPORTS AT NEW YORK.

FOR THE WEEK ENDED FEBRUARY 28, 1890.

An. Colors..	286	$15,376	Paper.....	252	$22,024
Alum.....	116	1,349	Steel Pens..	—	—
Alum's Cake	—	—	Stationery..	6	372
Bl. Powders.	484	5,987	Slate Pencils	2	50
Soda Ash...	132	2,675	Clay.....	—	483
Soda, Caus..	1,748	20,002	Jute Butts..	10,145	43,852
Soda, Sal....	555	1,352	P. Hangings	39	2,208
Ultramarine	—	—	Paper Stock.	3,420	50,679
Books.....	217	20,704	Terra Alba..	498	2,061
Newspapers	94	3,812	Waste.....	—	—
Engravings.	56	6,735	Wood Pulp..	10,832	20,413
Ink.....	9	229			
Lead Pencils	8	1,877	Totals....	28,899	222,230

Imports General Merchandise for the week ended February 28, 1890..... $4,783,308

IMPORTS OF PAPER STOCK AT NEW YORK.

JANUARY 1 TO MARCH 4, 1890.

Whence Imported.	*Rags.*	*Old Papers.*	*Chemical Fibre.*	*Ground Wood.*	*Manilla Stock.*
	Bales.	Bales.	Tons.	Tons.	Bales.
Alexandria ..a	3,099	—	—	—	—
Amsterdam....	—	—	18	—	—
Antwerp.....b	234	—	911	—	597
Aspinwall.....	511	—	—	—	—
Bremen.....	1,760	46	—	—	219
Bristol.....	—	—	—	—	699
Cadiz.....	87	—	—	—	—
Calcutta.....	—	—	—	—	1,347
Christiania....	—	—	742	—	—
Dundee.....	—	123	—	—	1,924
Fiume.....	—	113	—	—	909
Genoa.....	—	—	—	—	505
Glasgow.....	23	39	—	—	87
Gothenberg...	149	—	1,375	—	152
Hamburg.....	775	108	163	—	874
Havre.....	—	—	—	—	223
Hiogo.....	4,552	—	—	—	—
Hull.....	3,279	46	623	—	2,433
Leghorn.....	1,225	—	—	—	—
Leith.....	—	58	—	—	—
Liverpool....c	1,495	346	40	—	3,519
London.....	1,090	1,315	125	—	921
Newport.....	—	—	—	—	798
Newcastle....	72	—	—	—	440
Rotterdam....	—	—	75	—	—
Stettin.....	4,371	—	2,818	—	908
Zaandam.....	195	—	—	—	—

a. Including 67 bs. cotton waste.
b. Including 113 bs. cotton waste.
c. Including 22 bs. flax waste.

Special List of Imports of Paper Stock at the Port of New York for the month ended February 28, 1890.

Importers.	*Rags.*	*Old Papers.*	*Chemical Fibre.*	*Ground Wood.*	*Manilla Stock.*
	Bales.	Bales.	Tons.	Tons.	Bales.
Atterbury Brothers..	630	—	—	—	242
Burgass & Co.....	130	596	—	—	454
Castle, W. A.....	465	—	—	—	—
Darmstadt & Scott...	222	89	—	—	—
De Maziere, H., & Co.	149	—	—	—	—
Downing, R. F., & Co	—	—	15	—	—
Dutton, H., & Co....	—	—	—	—	712
Gottheil, Leon.....	319	—	220	—	—
Hamilton, George...	—	—	210	—	—
Harley, Charles.....	200	—	—	—	—
Harris, A.....	170	—	—	—	—
Hatton, E., & Co.....	108	—	20	—	—
Heinemann, P.....	212	—	—	—	—
Henderson Brothers..	—	—	—	—	23
Jessup & Moore Paper Co.....a.	186	—	—	—	272
La Mauna, F.....	—	—	—	—	223
Lewy Brothers.....	3,579	—	—	—	204
Lyon, John H., & Co.	167	—	101	—	124
Lyon, J. W., & Co....	30	—	50	—	423
Mason, J. W., & Co..	—	—	—	—	544
Neumark & Gross....	4,340	—	—	—	—
Norwegian Wood Pulp Co.....	—	—	950	—	—
Overton, R. H.....	131	24	31	—	266
Perkins, Goodwin & Co.....	—	73	75	—	78
Pirnie, James..	20	220	—	—	1,294
Ralli Brothers.....	—	—	—	—	1,347
Rau, George.....	200	10	—	—	83
Ring, M. A., Jr., & Co	170	—	—	—	—
Rogers, A., & Son..	130	—	—	—	—
Salomon, Felix.....	—	—	—	—	77
Seymour Paper Co..	1,986	—	—	—	—
Smith, Augustine, & Co...	195	418	—	—	—
Taylor, John L.....	—	81	—	—	501
Wertheim, A., & Co..	198	46	2,825	—	158
Totals.....	14,140	1,502	4,509	—	7,020

a. Including 113 bales cotton waste.

IMPORTS of Rags and other Paper Stock at the Port of New York for the month ended February 28, 1890, from the following named Ports, showing Quantities from each Port.

Whence Imported.	*Rags.*	*Old Papers.*	*Chemical Fibre.*	*Ground Wood.*	*Manilla Stock.*
	Bales.	Bales.	Tons.	Tons.	Bales.
Alexandria.....	1,986	—	18	—	—
Amsterdam.....	—	—	—	—	—
Antwerp.....a	113	—	360	—	—
Aspinwall.....	370	—	—	—	—
Bremen.....	1	—	—	—	—
Calcutta.....	—	—	—	—	1,347
Christiania.....	—	—	550	—	—
Dundee.....	—	91	—	—	705
Fiume.....	—	113	—	—	909
Glasgow.....	23	39	—	—	—
Gothenburg.....	149	—	1,375	—	152
Hamburg.....	—	—	67	—	—
Havre.....	—	—	—	—	223
Hiogo.....	4,552	—	—	—	—
Hull.....	1,604	46	281	—	1,223
Leghorn.....	425	—	—	—	—
Liverpool.....	1,250	220	—	—	984
London.....	314	993	100	—	282
Newport.....	—	—	—	—	798
Newcastle.....	48	—	—	—	440
Stettin.....	3,305	—	1,758	—	557
Totals.....	14,140	1,502	4,509	—	7,020

a. Cotton waste.

NEW YORK IMPORTS.

FROM FEBRUARY 25 TO MARCH 4, 1890.

Paper Stock.

Seymour Paper Company, Princess, Alexandria, 1,986 bs. rags.
A. Wertheim & Co., Westernland, Antwerp, 15 tons chemical fibre.
Leon Gottheil, by same, 190 tons chemical fibre.
John L. Taylor, Croma, Dundee, 348 bs. manillas.
Jessup & Moore Paper Company, by same, 60 bs. manillas.
Darmstadt & Scott, State of Indiana, Glasgow, 39 bs. papers, 23 bs. rags.
A. Wertheim & Co., Hindoo, Hull, 46 bs. papers.
H. Dutton & Co., by same, 242 coils. rope.
W. A. Castle, Letimbro, Leghorn, 275 bs. rags.
M. A. Ring, Jr., & Co., Lake Nipigon, Liverpool, 32 bs. new cuttings.
James Pirnie, by same, 12 bs. bagging.
Jessup & Moore Paper Company, Spain, Liverpool, 25 bs. rags.
J. W. Lyon & Co., by same, 201 coils rope.
James Pirnie, Lake Huron, Liverpool, 124 bs. papers, 64 bs. manillas.
M. A. Ring, Jr., & Co., by same, 70 bs. new cuttings.
Perkins, Goodwin & Co., by same, 78 bs. bagging.
James Pirnie, Crown of Arragon, Liverpool, 52 bs. papers, 114 bs. bagging.
A. Wertheim & Co., Chicago, London, 5 tons chemical fibre.
Burgass & Co., Levoca, London, 301 bs. papers.
M. A. Ring, Jr., by same, 68 bs. new cuttings.
J. W. Mason & Co., Rhodora, Newport, 398 coils rope.
H. Dutton & Co., by same, 470 coils rope.
A. Wertheim & Co., Norge, Stettin, 325 tons chemical fibre.
R. H. Overton, by same, 33 tons chemical fibre.
R. F. Downing & Co., by same, 15 tons chemical fibre.
Norwegian Wood Pulp Company, by same, 350 tons chemical fibre.
Perkins, Goodwin & Co., Polynesia, Stettin, 75 tons chemical fibre.
Lewy Brothers, by same, 144 bs. rags, 41 bs. bagging.
Leon Gottheil, by same, 10 tons chemical fibre,
A. Wertheim & Co., by same, 135 tons chemical fibre.
A. Wertheim & Co., Hekla, Stettin, 225 tons chemical fibre.
Norwegian Wood Pulp Company, by same, 230 tons chemical fibre.
Lewy Brothers, by same, 300 bs. rags.
Lewy Brothers, Marie, Stettin, 1,168 bs. rags, 163 bs. bagging.

Paper.

C. B. Richard & Co., La Champagne, Havre, 2 cs.
May Brothers, by same, 13 cs.
R. F. Downing & Co., by same, 7 cs.
W. B. Oldham, Arizona, Liverpool, 1 cs.
B. & O. Myers, by same, 4 cs.
J. F. Avery, Greece, London, 2 bs.
Baldwin Brothers & Co., by same, 1 cs. hangings.
R. F. Downing & Co., Rugia, Hamburg, 3 cs.
Barber & Ellis, by same, 5 cs.
Zuhring & Dietzgen, by same, 4 cs.
J. G. Ramsey & Co., by same, 4 cs.
Perry & Ryer, by same, 9 cs. colored.
W. Wallace, Bothnia, Liverpool, 6 cs. hangings.
Herter Brothers, by same, 3 cs. hangings.
Nevius & Haviland, by same, 8 cs. hangings.
G. Gennert, Cassius, Hamburg, 1 cs.
George Meier & Co., by same, 29 cs.
George Borgfeldt & Co., by same, 4 cs.
R. F. Downing & Co., by same, 2 cs.
American News Company, Suevia, Hamburg, 6 cs. packing.
F. A. Knoor, by same, 4 cs.
Hermann Fox, by same, 3 cs.
W. Wallace, by same, 5 cs.
American News Company, Teutonic, Liverpool, 14 cs.
F. J. Emmerich & Co., by same, 13 cs. and 5 bs.
H. H. Hayden, by same, 4 cs. hangings.
E. G. Soltman, Westernland, Antwerp, 3 cs.
Peter Wright & Son, by same, 4 cs.
Scoville & Adams, by same, 12 cs.
Sanders & Neulandt, by same, 11 cs.
Louis C. Wagner, by same, 2 cs.
W. H. S. Lloyd, Crown of Arragon, Liverpool, 3 cs. hangings.
Warren, Lange & Co., by same, 3 cs. hangings.
Nevius & Haviland, by same, 6 cs. hangings.
R. C. Thibaut, by same, 5 cs. hangings.
John Hunter, Croma, Dundee, 34 cs.
O. Manett & Co., Spain, London, 5 cs. lithograph.
Hensel, Bruckmann & L., by same, 20 bs.
W. Haase, Trave, Bremen, 2 cs.
R. F. Downing & Co., by same, 1 cs.
G. A. & E. Meyer, by same, 17 cs.
L. De Jonge & Co., P. Caland, Rotterdam, 38 cs.
American News Company, by same, 14 cs. wrapping.
Robert Gledhill, Aurania, Liverpool, 2 cs. hangings.
Nevius & Haviland, by same, 2 cs. hangings.
Robert Graves & Co., by same, 2 cs. hangings.
F. Beck & Co., by same, 3 cs. hangings.
F. G. Lugar, Son & Co., by same, 1 cs. hangings.
Walter & Strauss, by same, 3 cs. hangings.
A. V. Benoit, La Normandie, Havre, 1 cs.
Perry & Ryer, by same, 19 cs. cigarette.
F. W. Devoe & Co., by same, 1 cs.
J. C. Druckleib, by same, 30 cs.
P. Sury, by same, 2 cs.
Thomas Robert & Co., by same, 3 cs.
F. Beck & Co., by same, 9 cs.
Herter Brothers, by same, 4 cs.
W. H. S. Lloyd, by same, 4 cs.
Warren, Lange & Co., by same, 3 cs.
W. Wallace & Co., by same, 1 cs.
J. P. McHugh, by same, 2 cs.
Marx & Rawolli, Fulda, Bremen, 2 cs.
W. Hennemann, by same, 4 cs.
Knauth, Nachod & Kuehne, by same, 2 cs.
Willy Wallach, Rhaetia, Hamburg, 18 cs. packing.
L. De Jonge & Co., by same, 11 cs.
B. Lawrence Stationery Company, by same, 34 cs. tissue.
Wulff & Co., by same, 2 cs. colored.

BOSTON IMPORTS.

FROM FEBRUARY 26 TO MARCH 4, 1890, INCLUSIVE.

Paper, &c.

A. H. Roffe & Co., Pavonia, Liverpool, 5 bs. periodicals.
A. H. Davenport, by same, 6 bs. paper hangings.
Gregory & Brown, by same, 1 bale paper hangings.
Louis Wolff & Co., Otranto, Hull, 15 cs. albums.
Dennison Manufacturing Company, Michigan, Liverpool, 10 bs. paper.

Paper Stock.

C. A. Cheney, Michigan, Liverpool, 109 bs. manillas.
Train, Smith & Co., by same, 318 bs. paper stock.
Horace Dutton & Co., by same, 17 bs. and 50 coils manillas.
Springfield Waste Company, by same, 57 bs. paper stock.
C. A. Cheney, Lake Winnipeg, Liverpool, 62 bs. rags, 47 bs. manillas.
Order, by same, 157 bs. paper stock.
Train, Smith & Co., Otranto, Hull, 862 bs. rags.
Horace Dutton & Co., by same, 92 bs. rags, 436 coils manillas.
Stephen Lee & Co., by same, 62 bs. rags.
Atterbury Brothers, by same, 29 bs. rags.
Crocker, Burbank & Co., by same, 100 bs. rags, 110 bs. paper stock.
T. F. Ring, by same, 97 bs. paper stock.
M. A. Ring & Sons, by same, 178 bs. manillas.
C. A. Cheney, Istrian, Liverpool, 52 bs. paper stock.
T. F. Ring, Gothenburg City, London, 108 bs. paper stock.
M. A. Ring & Sons, by same, 113 bs. paper stock.
Train, Smith & Co., Oranmore, London, 247 bs. rags, 95 bs. manillas.
Horace Dutton & Co., by same, 93 coils and 742 bs. manillas, 103 bs. paper stock.
Francis Sprague, by same, 58 bs. manillas.
Crocker, Burbank & Co., by same, 83 bs. paper stock.
Stephen Lee & Co., by same, 61 bs. paper stock.
Order, by same, 30 bs. rags.
Horace Dutton & Co., Siberian, Glasgow, 113 bs. rags, 29 coils manillas, 15 bs. paper stock.

Wood Pulp.

C. A. Cheney, Lake Winnipeg, Liverpool, 20 bs.
Gill & Lootz, Otranto, Hull, 178 bs.
Leon Gottheil, by same, 200 bs.
Gill & Lootz, Oranmore, London, 1,000 bs.

Bleaching Powders.

Mason, Chapin & Co., Istrian, Liverpool, 82 cks.
Linder & Meyer, by same, 118 cks.
Linder & Meyer, Bavarian, Liverpool, 59 cks.
B. D. Webber, by same, 35 cks.
Warren & Co., Michigan, Liverpool, 485 cks.
E. & F. King & Co., by same, 45 cks.

Caustic Soda.

Warren & Co., Michigan, Liverpool, 471 drums.
E. & F. King & Co., by same, 350 drums.
E. & F. King & Co., Istrian, Liverpool, 100 drums.
E. & F. King & Co., Bavarian, Liverpool, 200 drums.

Soda Ash.

Morey & Co., Bavarian, Liverpool, 64 cks.
Linder & Meyer, Istrian, Liverpool, 180 cks.
Linder & Meyer, Pavonia, Liverpool, 2,060 bags.
Warren & Co., Michigan, Liverpool, 331 cks.
E. & F. King & Co., by same, 39 cks.

Soda Crystals.

Warren & Co., Michigan, Liverpool, 140 bbls.
Jerome Marble & Co., by same, 140 bbls.

Alkali.

J. L. & D. S. Riker, Pavonia, Liverpool, 81 cks.

Sizing.

Train, Smith & Co., Michigan, Liverpool, 146 bags.
Warren & Co., by same, 96 bags.
W. A. Castle, Otranto, Hull, 368 bags.

PHILADELPHIA IMPORTS.

FOR THE WEEK ENDED MARCH 1, 1890.

Books.

Porter & Coates, Ohio, Liverpool, 1 cs.
J. B. Lippincott Company, by same, 9 cs.

Paper.

J. Wittman, Ohio, Liverpool, 2 cs.
Charles Beck, by same, 25 cs.
A. Hartung & Co., by same, 10 cs.

Paper Stock.

Jessup & Moore Paper Company, Maryland, London, 294 bs. rags.

Caustic Soda.

Brown Brothers & Co., Ohio, Liverpool, 100 drums.

Soda Ash.

Brown Brothers & Co., Ohio, Liverpool, 117 cks.

Bleaching Powders.

E. Yarnall & Sons, Ohio, Liverpool, 50 tcs.

EXPORTS of Paper, &c., from New York for the Week Ended March 4, 1890.

BOOKS, cases, to London, 3; to British Australasia, 17; to British East Indies, 2; to Havre, 13; to Venezuela, 4; to Argentine Republic, 25; to Central America, 5; to Dutch West Indies, 1; to Hong Kong, 2; to Japan, 8; to Liberia, 1; to Leipsic, 1; to Liverpool, 10; to Mexico, 32; to Newfoundland, 5; to Nova Scotia, 1.

PAPER, to Cuba, 216 pkgs., 60,500 rms. and 17 cs.; to Central America, 3 cs. and 36 pkgs.; to Liverpool, 1 cs.; to Dutch West Indies, 4 pkgs.; to Mexico, 329 pkgs. and 10 cs.; to United States of Colombia, 11 pkgs.; to British Honduras, 119 pkgs.; to British West Indies, 350 rms., 244 pkgs. and 1 cs.; to Brazil, 2,350 rms. and 1 cs.; to Danish West Indies, 235 rms.; to Glasgow, 84 pkgs.; to Hamburg, 2 pkgs.; to London, 301 cs.; to Newfoundland, 1 pkg.; to Nova Scotia, 109 pkgs.; to Porto Rico, 100 pkgs. and 1,000 rms.; to San Domingo, 155 pkgs.; to Venezuela, 19 pkgs. and 3 cs.

STATIONERY, cases, to Cuba, 60; to Brazil, 6; to Dutch West Indies, 3; to London, 47; to Mexico, 105; to United States of Colombia, 9; to British Honduras, 3; to British West Indies, 6; to Australasia, 14; to Central America, 20; to Havre, 2; to Hamburg, 7 cs. and 39 bdls.; to Liverpool, 10; to Newfoundland, 9; to Nova Scotia, 3; to San Domingo, 15; to Venezuela, 11.

AGGREGATES AND VALUES.

Paper, reams.....	64,435	$11,314
Paper, pkgs.....	2,094	12,659
Paper, cases.....	348	6,393
Books, cases.....	130	12,847
Stationery, cases.....	335	17,064
Rosin, bbls.....	10,100	20,125
Totals.....	77,372	$80,402

Exports General Merchandise for the week ending March 4, 1890..... $6,972,543

TRAIN, SMITH & CO.,
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AN extended quotation from a paper on peroxide of hydrogen and its application to bleaching will be found in another column. It will be observed that it is claimed that economy—an always important feature—is urged in support of the use of this bleaching agent. Peroxide of hydrogen is said to be as valuable in paper making as in other lines of manufacture where a bleaching medium is required.

THE device which is illustrated and described on the first page of this issue of THE JOURNAL is the invention of a German engineer whose name is identified with the manufacture of paper making machinery and various improvements therein. This apparatus is intended to be applied in dampening paper and textile fabrics wherever the processes of manufacture may require such a procedure. It does not appear to be complicated, and its workings will be readily understood.

SEVERAL forms of apparatus for recovering alkali from the spent liquor of soda fibre works have recently been brought forward. All of these have been designed with a view to greater efficiency and economy of time and labor in evaporating and recovering the soda. Another example in the same line will be found illustrated and described in this issue of THE JOURNAL. It is quite evident that the manufacturers of soda fibre propose to hold their ground, and that if improved appliances will enable them to do so they will seek them. The devices lately illustrated have attracted attention, which will, we presume, be also given to the latest outcome of invention in this line.

IMPORTERS of chemical fibre have been greatly interested in a case the facts in which will be found fully set forth in our news columns. The Government alleged that an importing firm was undervaluing its goods, and the appraiser's department advanced the valuations on five invoices. The importer demanded a reappraisement, which was had on Thursday, and which has resulted in the advances being sustained. The advances are sufficient to bring the case within that section of the Revised Statutes which provides that where goods have been undervalued to an amount exceeding 10 per cent., not only shall duty be paid on the advanced valuation, but an additional duty or penalty of 20 per cent. ad valorem shall be collected. The Government has, we learn under advisement, other invoices by the same importer, and possibly a similar investigation will be had as to them. The case is important, not only to importers of foreign fibres but to domestic makers of similar goods. If, as alleged, these undervaluations occur, the customs officials cannot be too prompt in their action.

WE understand that the assignee of D. D. Tompkins & Son is likely to be brought into court and examined as to his knowledge of the partnership transactions of the embarrassed firm. So far he has given little information upon which the creditors can intelligently act, and, while none of them wish to be harsh in the matter, there is no reason why the debtors' position, past and present, should not be thoroughly investigated. If the assignee knows more than he has voluntarily disclosed there can be no impropriety in putting him under oath in the witness box. The committee of investigation which was appointed at the meeting of the creditors on Friday week is composed of active and trustworthy men who may be expected to probe to the bottom all questions affecting the interests of the general body of creditors. While it is ordinarily inadvisable to resort to litigation on questionable matters which sometimes arise in cases of insolvency, there is no reason whatever why, if irregularity exists, the courts should not be asked to place the responsibility where it belongs.

THE mercantile community should certainly try to strengthen the hands of those who are endeavoring to secure for the country better transportation facilities by land and sea. The recommendation of the American International Conference to construct a railroad extending from the United States to and through every country upon the American continent ought to appeal to every shipper and forwarder of freight. There is little reason to doubt that in course of time such an international railroad will be built. The conference recommends that the road be free to shippers, that it be constructed by governmental aid and that the interest it shall be called upon to pay for such aid shall be reduced to a minimum. There are other and perhaps less commendable propositions made by the conference in connection with this great enterprise, but now that Congressional attention is directed to the measure which proposes to grant a bounty to American built ships, it is peculiarly fitting that we should also consider this vital question of land transportation. Only on Thursday last a bill was introduced in Congress which proposes to abolish a portion of the navigation laws so as to enable any citizen of this country to purchase foreign made vessels and run them under the American flag. This bill has been introduced as a set-off, so to speak, against the bounty bill, which stands an excellent chance of becoming a law this session. However anxious English ship owners and builders may be to sell us their surplus tonnage, it will be impossible for them to do so in the present temper of the Senate and House of Representatives. If Congress does its duty the free ship bill will be consigned to the waste basket and substantial aid, on the other hand, will be given to the shipping industries of the country.

THAT Chicago is not now in a condition to carry forward the work of the world's exposition for 1892 is painfully evident. After all of the talk that has been had and the great professions which have been made, this is somewhat amazing. We do not see how Congress can make any appropriation other than that needed for preparing a Government exhibit, and yet it is now given out that Chicago looks to the Government for the financial support which is likely to be needed. Had New York been given official recognition this condition of affairs would not have existed. The project to hold an international exhibition in 1892 having gone so far cannot be creditably dropped, nor should the date be changed. We need the fair, and it is hoped that the people of Chicago will become convinced of the necessity of carrying the project forward by themselves. Appeals have been made to manufacturers and merchants in New York to furnish means for helping Chicago to meet the responsibility which she has assumed. New York people want the exhibition to be successful, no matter where it may be held; but they cannot avoid surprise at being called upon to contribute in an interest which was so expressive of assurance before the question of location was determined.

PAPER STOCK IMPORTS.

The imports of rags and other paper making fibres—jutt butts excepted—at the port of New York during the month ended February 28, as reported, amounted to 22,662 bales and 4,509 tons, the difference in quantities compared with the corresponding month of 1889 being a decrease in rags of 3,383 bales, in old papers a decrease of 400 bales, and in manilla stocks a decrease of 5,756 bales. There were no imports of wood pulp during February, and of chemical fibre 2,134 tons more than the January imports were brought in. The appended tabulation shows the quantities of paper making materials of the kinds mentioned which were reported as having been imported during the month of February for five years:

	1890.	1889.	1888.	1887.	1886.
Rags.....bales.	14,140	17,523	7,012	5,523	17,662
Old Papers.....	1,502	1,902	2,336	2,003	2,621
Manilla Stocks	7,020	12,776	11,112	6,557	8,794
Wood Pulp*....tons.	....	133	2,223	11,981	1,748
Wood Fibre.....	4,509	2,447	2,968	....	....

* Quantities reported for 1886 to 1888 refer to bales and include pulp and fibre.

The arrivals from the different ports were as follows: Alexandria, 1,986 bales rags; Amsterdam, 18 tons chemical fibre; Antwerp, 113 bales rags, 360 tons chemical fibre; Aspinwall, 370 bales rags; Bremen, 1 bale rags; Calcutta, 1,347 bales manillas; Christiania, 550 tons chemical fibre; Dundee, 91 bales old papers, 705 bales manillas; Fiume, 113 bales old papers, 209 bales manillas; Glasgow, 23 bales rags, 39 bales old papers; Gothenburg, 149 bales rags, 1,375 tons chemical fibre, 152 bales manillas; Hamburg, 67 tons chemical fibre; Havre, 223 bales manillas; Hiogo, 4,552 bales rags; Hull, 1,604 bales rags, 46 bales old papers, 281 tons chemical fibre, 1,223 bales manillas; Leghorn, 425 bales rags; Liverpool, 1,250 bales rags, 220 bales old papers, 984 bales manillas; London, 314 bales rags, 993 bales old papers, 100 tons chemical fibre, 382 bales manillas; Newport, 798 bales manillas; Newcastle, 48 bales rags, 440 bales manillas, and Stettin, 3,305 bales rags, 1,758 tons chemical fibre, 557 bales manillas.

Watermarks.

BY DANDY.

For the past two or three weeks THE JOURNAL has been giving us some new designs in architecture as applied to reclaiming apparatus. I find that considerable interest attaches to these and that people want to know who owns the apparatus.

Inasmuch as inquiries of this kind come from makers of soda fibre, it seems to be very evident that these gentlemen are on the qui vive as to everything relating to their interest. I imagine that they have got it in their heads to beat sulphite or "bust."

An extremely interesting bit of information has been sent to me. It is an extract from a Western paper and reads as follows:

"We learn from the Kaukauna (Wis.) *Sun* that Mr. Norm. H. Brokaw has discovered and patented a new process for manufacturing wood pulp, called 'Sulphite Fibre,' and has erected very extensive buildings in Kaukauna for its manufacture."

Which, I may remark, is a big piece of news. I did not know until now that Mr. Brokaw claimed to be the inventor of a new *process* called "sulphite fibre." He is to be congratulated upon this heroic effort.

But I doubt very much if Mr. Brokaw ever did make any such claim, or assumed even to be a discoverer of sulphite fibre or of a process for making it. This must be one of the by no means unusual newspaper statements made by a paragrapher who does not know what he is talking about.

And this reminds me that some of the newspapers which are arguing against the tariff talk about tin plates which they assume are entirely made of tin. This is crass ignorance; but, for all that, the information that Mr. Brokaw has discovered a new process called sulphite fibre, and that tin plates are made of tin, is "news" indeed. It is perfectly astonishing how some people get the news ahead of all the rest of the world.

There has come to hand a sheet of paper decorated with the little red stickers favoring a world's fair in Chicago. In the centre of the circle made by the stickers are the words: "One box of cigars—one hundred in a box, good flavor—by express, charges prepaid."

As I gaze on this diploma I am led to the conclusion that the "Irish Agitator" of Tammany Hall has made a bet with a gleeful Chicago man and lost the same, the penalty being that the aforesaid "Agitator" will have to pay for one box of "twofers."

That creditors' meeting at the Astor House last week must have been what the boys would term a "circus." The assignee seemed to know about as little as any man could possibly know, and the information given to the creditors was very meagre indeed.

A good joke is told on three gentlemen who are experts in the sulphite line. A wag—who, by the way, is in the trade—produced a piece of parchment paper and alleged it was bleached sulphite, whereupon the experts began to operate on it to determine its quality. They wet it on their tongues, gazed wisely at it, examined it and were greatly disgusted—when informed as to its true character.

Talking of sulphite reminds me that the news comes that the Government has discovered some alleged undervaluation by an importer of wood fibre and has advanced the valuations sufficiently high to carry with them a 20 per cent. penalty. Maybe, perhaps, somehow or other, these valuations will account for some low prices with which other importers have been unable to compete.

Getting at facts in the Custom House is a very tedious task. The "C. H." is an immense "circumlocution" office, and one is referred from one man to the other until after a time he begins to believe that no one in the place knows anything about the case inquired about, or if there ever was such a man possessing the information he has escaped or been locked up.

At any rate, the particular man for whom you are looking and who could possibly tell you what you want to know has gone to lunch, or gone to "see a man," or is in the "Fourteenth Division, department F, pigeon hole 3," which for the life of you you cannot find. The real fact is he is not "getatable."

But I presume it is the same with any machine of the like magnitude, but to a man unaccustomed to it it is simply bewildering.

And then how the "old stagers" look aghast and almost speechless when you ask for some information which it is "against the rules" to give out. It really is too funny for anything to see the reverence some men have for precedents.

The steamer De Ruyter, which was bound for Boston and which has gone ashore off Gunner's Point, may possibly be saved, together with her cargo, consisting in part of rags.

When I first heard of the catastrophe I thought it was going to be another good sale of rags to the underwriters.

Communications.

Advice Wanted.

ALPENA, Mich., March 5, 1890.

To the Editor of The Journal:

The citizens of Alpena propose starting a joint stock company for the purpose of getting a paper mill, and as it seems that there is a glut of certain kinds of paper on the market we would duly appreciate the favor if you will inform us what kinds can probably be manufactured here at the greatest profit. C. W. BERTCH.

[NOTE.—Perhaps some paper manufacturer will venture a suggestion in reply to the foregoing. We hesitate to risk one.—ED. P. T. J.]

Trade Talks.

J. Norton, Jr., Maritime Chemical Pulp Company, Chatham, N. B.—The mill which I represent is running to the full capacity of its present facilities, and the demand for its product is so great that we shall have to enlarge our plant. The president of the company and I are going to Europe, having this in view. We use, as you know, the Ritter-Kellner process, and believe that we have the finest mill in America. The sulphite fibre produced at this mill is of high grade and we find a ready demand for it. When we increase our production of fibre we shall put in a paper mill plant and manufacture news. We shall build a machine room and put in three 96 inch machines. These will be of American make, for we believe the American machines to be better for running and convenience than any of foreign make. Within the next five years the United States and Canada—the United States principally—will supply about all of the daily papers of Great Britain with news paper, for the manufacturers on this side of the Atlantic can undersell the English paper makers. We expect to make a contract for supplying 10 tons per day of print paper delivered in Liverpool. We have been in negotiation for this by letter and only a slight difference in price has prevented us from closing the contract; but that contract will probably be closed when we, the president of our company and I, reach the other side. We are bound to have it and we sail to-morrow for England.

Charles Callender, Glendale, Mass.—Trade! Why trade—with me, at least—is very good indeed. I am as busy as I can be at my mill and am running all the time on actual orders. Prices are not altogether what they should be, but then we all have to do the best we can.

E. R. Solliday, Lambertville, N. J.—We are having a steady flow of orders at our mill and the call for paper is very steadily maintained. Our product is covered by actual orders and we are running our machines in response to calls from customers.

Failures.

The Thomas Rice Paper Company, Newton Lower Falls, Mass., has made an assignment for the benefit of its creditors to Geo. W. Morse, attorney, of No. 28 State street, Boston, Mass. The unsecured liabilities are $20,000, and there are liabilities of $14,000 which are secured on the mill. The mill has cost the company $48,000. The stock, tools and movable machinery aggregate $10,000 more. A detailed statement of the liabilities and assets is being prepared.

Joel Parker White and Frank Allen, of the firm of White & Allen, importers and publishers of books at 32 Great Jones street, New York, and the Strand, London, have made an assignment, without preferences, to Nathan Bangs Williams. Their trouble, it is said, is on account of a demand on the firm by Mary J. White for the payment of $10,000. Messrs. Benedict, of Benedict & Valentine, and Pfister, of F. J. Pfister & Co., have been named by the creditors to make an examination of the firm's affairs and report what is best to be done in the matter. The liabilities are not definitely known, as the accounts have not all been closed, but are reported in the trade to be about $50,000—about one-half of which is due in Europe. The assets are large and creditors think that the embarrassment will only be temporary. Mr. Allen is on his way from Europe, and is expected to arrive Saturday next. Mr. White has been in business since 1881. Both he and Mr. Allen were partners in the firm of White, Stokes & Allen, which was dissolved April 13, 1887, when the present firm was formed, claiming $25,000 capital and outside means of $35,000.

R. R. Donnelley & Sons, Chicago, Ill., printers of the Chicago City Directory, one of the oldest printing and publishing houses in the West, failed March 5 with liabilities reported to be about $175,000, and assets which, it is asserted, will probably not realize more than $40,000. Judgments for several comparatively small debts were entered up in court during the day, and notice of an application for a receiver was made by one of the creditors. On Wednesday a deputy sheriff took charge of the entire Donnelley establishment. It appears that the firm has for five years been paying extravagant interest to a local banker on a loan made to tide it over losses incurred by the collapse of several enterprises in which it was indirectly interested. To meet this debt and other obligations, a loan, aggregating nearly $60,000, was recently negotiated with the Park National Bank, M. T. Roberts, of the Thirty-first Street Bank, and J. H. Bunnell, of New York, and a mortgage covering the entire plant was executed as security. It is claimed the understanding was that the Park National would take up all outstanding obligations of the firm. The assertion is made that the proceedings, precipitating a

failure, were in the interest of the Park National, with the object of shutting out the unsecured creditors. The failure of the firm, it is claimed, will not affect the Chicago City Directory Company, which is an incorporated and a distinct concern. On March 6 additional judgments amounting to $30,000 were entered against the firm.

Changes, Removals and New Firms.

C. E. Reid, publisher, La Platte, Mo., has sold out.

Walter S. Carson, printer, Greenfield, Mass., has sold out.

Charles T. Bogart, publisher, Lenora, Kan., has sold out.

P. E. McClellan, publisher, Montpelier, Idaho, has sold out.

S. M. C. Reynolds, publisher, Salubria, Idaho, has sold out.

E. K. Henry has succeeded J. S. Eitemiller, printer, Irwin, Ia.

D. A. Holmes, proprietor of the *Daily Times*, Worcester, Mass., has sold that paper.

J. & J. M. Cohen, paper stock dealers, Decatur, Ill., have dissolved partnership.

Starr & Thompson, stationers, &c., Plainville, Mich., have dissolved partnership.

Kelly & Co., stationers and printers, Salt Lake City, Utah, have been incorporated.

Hall & Hostetler, publishers of the *Herald*, Decatur, Ill., have dissolved partnership.

Greene A. Crawford & Son, printers, Providence, R. I., have closed out their business.

The Cherrier Directory and Publishing Company, Lincoln, Neb., has been dissolved.

Elder & Nichols, dealers in paper hangings, Tacoma, Wash., have dissolved partnership.

De Lacy & Williams, publishers of the *News*, San José, Cal., have dissolved partnership.

T. E. Helmick & Co. succeed Helmick Brothers & Co., stationers, &c., West Superior, Wis.

Thomas Russell, bookbinder, New York, has admitted Robert W. Russell to an interest in his business.

A. H. Murray & Co., dealers in paper hangings, &c., Hastings, Neb., have dissolved partnership.

Theron Butterworth has sold his paper mill at Chatham, N. Y.. and has gone out of the paper busines.s

Cutler L. Bonestell has been admitted to the firm of Bonestell & Co., wholesale paper dealers, San Francisco, Cal.

Edward Jollie has withdrawn from the firm of Linton Brothers & Co., manufacturers of cardboard, Pawtucket, R. I.

M. A. Ring, Jr., & Co., paper stock importers, have removed their offices to Room 131, *Times* Building, New York.

C. H. Milliken, representing the Poland Paper Company, Mechanics Falls, Me., has opened an office in Room 131, *Times* Building, New York.

A. J. Tubbs, C. A. Hoffman, P. H. Day and others, of Roanoke, Va., are organizing a company for the manufacture and sale of the Stevens paper bag machine.

The Farmers' Alliance, of Richland County, S. C., will, it is reported, organize a $25,000 stock company to publish an agricultural newspaper at Columbia.

The Beaumont Printing and Publishing Company has been incorporated at Beaumont, Tex., by W. A. Fletcher, L. P. Ogden, W. Wiess and others, with a capital stock of $10,000.

The World's Fair Official Catalogue Company, Chicago, Ill., has been incorporated to publish and sell the official catalogue of the world's fair to be held in Chicago. Capital stock, $250,000.

W. E. Burris, who has been at the head of the wholesale department of the Bowen-Merrill Company, of Indianapolis, Ind., for the past twelve years, is to start in the wholesale blank book and stationery business at Indianapolis about May 1 under the firm name of the Burris-Herzsch Company.

The limited partnership which was organized on August 1, 1887, between Edward J. Merriam as general partner and Thomas Stratton as special partner, under the firm name and style of Edward J. Merriam, for the purpose of dealing in paper at the city of New York, and which was by its terms to expire on August 1, 1897, was dissolved on March 3 by mutual consent. The business will be continued by Edward J. Merriam alone.

Fires.

G. A. Hawleys, bookseller and stationer, Newton, Kan., has been damaged by fire.

M. J. Bean, bookseller and stationer, St. Mary's, Ont., has been partially burned out.

A fire which occurred on Monday, March 3, at Nos. 75 and 77 Duane street, New York, damaged the stock of Kaufmann & Strauss, importers, $3,000; American Strawboard Company, $500. Damage to building, $1,000.

Hutton & Hubbard, stationers, &c., Cheney, Wash., have been burned out. Loss, $1,600.

M. W. Watts & Co., booksellers, &c., Victoria, B. C., have been burned out. Loss, $500; insured.

J. W. Zoller, publisher of the *Tribune*, Mount Olivet, Ky., has suffered a loss by fire to the extent of $100.

A fire broke out in Greenberg & Houghton's job printing house at Spokane Falls, Wash., on March 3. Before the water could be turned on a loss of $5,000 was sustained.

Mortgages, Etc.

[In the appended list R. signifies a renewal of a pre-existing mortgage; B. S., bill of sale; and Real, a mortgage on real estate.]

NEW YORK CITY.

Mortgagor.	*Amount.*
Flockhart Brothers & Co.	$2,600

EASTERN STATES.

Edward A. Burgess, Lowell, Mass.	100
Henry C. Doyle, Pawtucket, R. I.	125

MIDDLE STATES.

National Printing and Publishing Company, Buffalo, N. Y. (B. S.)	1

WESTERN STATES.

H. G. Tinsley (Tinsley & Lorbeer), Pomona, Cal.	868
Alta California Publishing Company, San Francisco, Cal.	11,051
A. M. McNeil (McNeil Brothers), San José, Cal.	5,220
W. T. Lyon, Selina, Cal.	350
Evaline Bubbett (*Guiding Star* Printing Company), Chicago, Ill.	500
S. M. Irwin, Golden, Ill.	207
George Sanborn, Fonda, Ia. (Real)	1,800
J. C. Hopkins, Lyons, Ia.	500
C. Scoonover, Woodward, Ia.	225
James M. Swan, Arcadia, Kan. (Real)	227
John Q. Royce, Smith Centre, Kan.	1,272
C. E. Bell, Evart, Mich. (R.)	400
Watkins Brothers, Hastings, Neb.	425
Franklin Peale, North Platte, Neb.	635
Standard Printing Company, Omaha, Neb.	1,250

LIENS RELEASED.

Frederick Hess (Fr. Hess & Co.), San Francisco, Cal.	7,500

Personals.

Martin Rourke, paper stock packer, Manchester, England, arrived here this week on the Teutonic.

Hon. Warner Miller was elected president of the Nicaragua Canal Construction Company last Wednesday.

Chauncey Hibbard, employed in the Michigan Paper Company's mill at Plainwell, Mich., had his fingers crushed in the calender rolls on the 24th ult.

John Stuart, president, and J. Norton, Jr., manager of the Maritime Chemical Pulp Company, Chatham, N. B., have been in the city this week. They sailed for England on the Teutonic on Wednesday to investigate improvements in fibre making and look up a foreign market for their fibre.

At the Winnebago Paper Mills, Neenah, Wis., on March 1, a workman named Chris Johnson was sent to shovel snow from off the roof. In jumping from one roof to another he alighted on a skylight which was hidden from view by the covering of snow. He fell 20 feet and dropped into the working parts of a 300 horse power engine. The horror stricken employees rushed to the spot to recover enough of his corpse for burial, and as they looked between the revolving wheels they saw Johnson creep under a crank shaft and walk out uninjured.

SPECIAL NOTICES.

[Insertions under this heading will be charged 50 cents a line. Payment invariably in advance.]

THOS. BUTLER & CO.,
Rags, Paper Stock, Old Metals, Rubber,
249-253 Causeway St., Boston, Mass.

CARPENTER & BARTLETT,
Cotton and Woolen Rags, Paper Stock, Old Metals and Rubber,
No. 190 Front Street, Hartford, Conn.

JAMES SAVAGE, JR.,
Rags, Paper Stock, Rubber, &c., &c.,
530 to 536 West 38th St., New York.

Market Review.

Office of The Paper Trade Journal,
Friday, March 7, 1890.

THE MONEY MARKET.—The stock market is quiet and irregular. The money market was moderately active and steady to firm. Call loans on stock collateral ruled at 4@5 per cent. Time money was in slightly better request, and was quoted at 5@5½ per cent. for sixty days to three months and 5 per cent. for longer terms, up to six months. The supply of commercial paper is moderate, and the demand from out of town banks shows signs of falling off. Quotations are as follows:

	Sixty days.	Four months.
Double named—		
First class	5 @ 5½	5 @ 5½
Good	5½@ 6	5½@ 6
Single named—		
First class	6 @ 6½	6 @ 6½
Good	6½@ 7	6½@ 7
Not so well known	7 @ 9	7 @ 9

The market for sterling was inactive and steady. Posted rates closed at $4.83½ for sixty days' and $4.87 for demand. Rates for actual business were as follows: Sixty days' sight, $4.82¾@4.83; demand, $4.86¼@4.86½; cables, $4.86¾@4.87; commercial, $4.81@4.81½. Continental bills were quoted as follows: Francs, 5.21¼ and 5.18¾; reichsmarks, 94¾ and 95¼@95⅜; guilders, 40⅛ and 40¼. Government bonds are easier and quiet.

THE PAPER TRADE.—One does not find many new features in the paper market nowadays, and there is really little in the market which is out of the ordinary. Writing papers move along very fairly and prices are regular, with most mills in this line busily engaged. There is some complaint as to the call for Book, and publishers do not appear to be anxious to lay out a large aggregate of business. News mills are very busy and the product is fully absorbed by deliveries. Prices do not advance, however. Manillas are in moderate call and prices are firm on strictly No. 1 grades, but irregular on lower qualities. Strawboards are quiet. Straw Wrappings are having a moderate amount of favors, but prices are low.

JUTE BUTTS.—The Jute Butt market is quiet and values are unchanged. The statistical position, as given by the March circular of Cabot, Ray & Co., is as follows: Imported into the United States, 1887, 348,524 bs.; 1888, 457,884 bs.; 1889, 412,689 bs. Consumed in the United States, 1877, 376,424 bs.; 1888, 389,684 bs.; 1889, 417,889 bs. Stock on hand, New York and Boston, January 1, 1890, 66,173 bs. Imported, New York and Boston, since January 1, 1890, 54,935 bs.; 1889, 40,529 bs.; 1888, 151,186 bs. Stocks, New York and Boston, March 1, 1890, 70,645 bs.; 1889, 64,200 bs.; 1888, 20,000 bs. On passage for United States to January 21, 1890, and by cable to March 1, 1890, 161,499 bs.; 1889, 236,269 bs.; 1888, 246,307 bs. Visible supply to July 1, 232,144 bs.; 1889, 300,469 bs.; 1888, 266,307 bs. Consumption since January 1, 1890, 50,466 bs.; 1889, 47,229 bs.; 1888, 133,686 bs. Delivered to consumers past thirty days 14,312 bs.; 1889, 26,221 bs.; 1888, 90,493 bs. The same circular says: "Receipts for February have exceeded consumption by 5,756 bales, with very little fluctuation in prices. Sales on spot Paper quality have been made at 1⅝@1 9-16c. In futures sales have been light at 1 9-16c.; in Mixing small sales on spot; in first grade spinning no sales to report. Calcutta market closes rather strong for all grades. We quote market on spot Paper quality at 1⅝c., Mixing 1⅞@1 15-16c. and first quality Spinning 2¼@2½c. Shipments from Calcutta for February, 21,000 bales of all grades."

WOOD PULP.—There is a very fair call for Ground Wood and prices remain without any change.

WOOD FIBRE.—The demand is rather light and business is not as brisk as it might be. The trade has been very greatly interested this week in a case of alleged undervaluation, details of which are given elsewhere. The association rate is still 3¾c. for Bleached. Foreign grades are quoted as follows: Unbleached Pine, soda process, 2.85@3.30c.; Bleached, same process, 3½@4.22c.; Unbleached, sulphite process, 2.85@3.70c.; Bleached, do., 4¼@5c.; Bleached Straw Pulp, 4⅛@4¼c. There were imported this week 1,608 tons, being 205 tons from Antwerp, 5 tons from London and 1,398 tons from Stettin.

FOREIGN RAGS AND PAPER STOCK.—The market for foreign rags continues quiet and without feature. Purchases are of a hand to mouth character, and there is no disposition manifested to lay out extensive lines of business. Imports during the week aggregated 6,774 bales and 1,608 tons, being 4,091 bs. rags, 562 bs. old papers, 1,608 tons chemical fibre and 2,121 bs. manillas. Ports of shipment and quantities are: Alexandria, 1,986 bs. rags; Antwerp, 205 tons chemical fibre; Dundee, 408 bs. manillas; Glasgow, 23 bs. rags, 39 bs. old papers; Hull, 46 bs. old papers; 242 bs. manillas; Leghorn, 275 bs. rags; Liverpool, 127 bs. rags, 176 bs. old papers, 469 bs. manillas; London, 68 bs. rags, 301 bs. old papers, 5 tons chemical fibre; Newport, 798 bs. manillas; Stettin, 1,612 bs. rags, 1,398 tons chemical fibre, 204 bs. manillas. Besides these there was a cargo of 5,600 bales Japanese Blues came in, and which went from here to S. D. Warren & Co., at Portland, Me.

DOMESTIC RAGS.—There is a moderate call for stock, but business is not brisk, and one hears a good many complaints. Old prices hold very fairly.

BAGGING, &c.—The market for Gunny is at present almost at a standstill. Manufacturers' ideas are low and they do not appear to be anxious to purchase at all. The quotations range 1.57½@1⅝c., but the movement is so small that prices are not fixed. Jute Threads and Ropes are quiet and low. There is some call for Manilla rope, but stock is not at all plentiful and old prices nominally rule. Imports for the week aggregated 2,121 bales, being 408 bs. from Dundee, 242 bs. from Hull, 469 bs. from Liverpool, 798 bs. from Newport and 204 bs. from Stettin.

OLD PAPERS.—The market for old papers is without animation, and there is only a moderate trade in progress. We quote: No. 1 Hard White Shavings, 3½c.; No. 1 Soft White do., 2½@2⅝c.; Old Ledgers, 2½c.; Solid Printed Books, 1.60@1.65c.; Mixed Shavings, 1⅜@1.45c.; No. 1 Manillas, 1.60@1⅝c.; Light Book Stock, ¾@.77½c.; Folded News, .75@.90c.; Commons, 55@65c.; Bogus Manillas, 60@90c.; Straw Clippings, 75c.; Binders' do., 65c.

STRAW.—Straw is steady on moderate demands. We quote: No. 1 Rye at 75@80c.; Short Rye at 40@45c.; Oat at 30@35c.

ROSINS.—Rosins are quiet and without change. We quote in lots from the yard: Common to Good Strained, $1.40@1.45; E, $1.55@1.60; F, $1.65@1.70; G, $1.75@1.80; H, $1.85@1.90; I, $2.30; K, $2.45@2.50; M, $2.95; N, $3.40@3.45, and W. G., $3.55.

CHEMICALS.—The chemical market shows no particular changes except in Soda Ash and Caustic Soda, both of which are moving actively. Reports from Liverpool indicate a firmer market there on both of these articles, while Bleach also is firm and in demand. There are labor troubles in Liverpool, and it is said that on the 11th inst. there will be a general strike of the dockmen if the question is not settled before that day. On spot bleach is very quiet, and the market is easy. On spot quotations range 1.45@1.50c., but to arrive figures range down to 1⅜c. The heavy buying by glass manufacturers has had a decided effect on the soda ash market, and with a scarcity of goods and an active call prices have gone up. Under a brisk demand for both prompt and future delivery Caustic Soda retains its high position, and spot lots are being held back in anticipation of even higher prices. During the week there have been sales as follows: 200 cks. Bleach, spot, at 1.45@1.50c.; 200 drums Caustic Soda, spot and to arrive, at 2.80c.; 300 bbls. Natrona Porous Alum at 2½c.; 300 bbls. Pearl Alum at 2½c.; 100 bbls. Ground Alum at 1.85c.; 100 bbls. Lump Alum at 1.75c.; 15 cs. German Ultramarine at 17c.; 10 bbls. American Ultramarine at 12½c.; 50 tons 58 per cent. Alkali, to arrive, at 1.50c.; 20 tons 58 per cent. Alkali on spot at 1.90c.; 100 bbls. Keystone Alum at 1⅜c.; 150 tons Soda Ash at 1.55@1.65c.; 25 tons Sal Soda, spot, at 1c.

CHINA CLAY—Has been selling fairly well, and price and the volume of trading have been considered reasonably satisfactory. The fact that sea freights are advancing tends to raise the views of holders, and some brands are scarce and wanted.

COAL.—Coal is not wanted at present in any great quantity and therefore the output is down to a minimum; the price is also down to a very low figure compared with those ruling at this time in the last year or two; some of the sales which come to our notice are on a basis equal to that of the so-called low figures of 1879. The trade will no doubt take a start for the better when the shipping season of 1890 opens, and there may be a good average year's business done, in spite of all the drawbacks which have been encountered in the early part of this year—due to the mild winter. The report from Philadelphia is of continued dullness, the demand being light and prices less on all line and city business. It is said that while these prices are 10 to 25 cents per ton lower than their previous public prices, the individual operators have been underselling the reduced figures from 10 to 25 cents additional per ton. At New York the dealers report a trifle more doing, as the stocks are depleted from day to day, but there is no animation in the trade and transactions at the rate of $3.50 or less are heard of for stove coal by the cargo at the loading points. Anthracite is selling very low in the West. The stocks carried over will depend largely on the climatic conditions during the month of March. Chicago advices are that Anthracite drifts along as previously reported, with the possible exception that there is a stiffer tone to the larger sizes; there is a scarcity of these sizes without any immediate prospect of further receipts, and the disposition to hold all there is in stock at higher figures than now current is growing and shippers are cautious in accepting orders therefor. The small sizes, stove and chestnut, comprise the larger portion of the present stocks on hand. There is great diversity of opinion among the Missouri River jobbers as to the course of trade after April 1, many affecting to believe that May will see quite a heavy movement of coal to points on and beyond the Missouri from the coal in stock at lake ports. Good coal burning weather for one month would set everything in good shape for the opening of the active season of 1890. In soft coal circles everyone is talking of a very large business this year, and if the operators in all the districts lay themselves out to do this large business one does not need to be a prophet to see what the results will be.

EDWIN BUTTERWORTH & CO.,
MANCHESTER, ENGLAND,
PACKERS OF ALL KINDS OF
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OFFICE IN NEW YORK:
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JAMES PIRNIE, Manager.

CRATTY BROS. & ASHCRAFT, Lawyers,
189 Dearborn Street, CHICAGO.
COMMERCIAL AND CORPORATION LAW.
COLLECTIONS A SPECIALTY.
REFERENCES.—Western Wrapping Paper Mfg. Ass'n, Chicago: Chicago National Bank; Western News Co.; Rand, McNally & Co. New York: George Mather's Sons. Boston: Carter, Rice & Co.

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MANUFACTURED BY
H. WATERBURY & SONS CO.,
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Adapted to *every* grade of paper, from the *finest* to the *coarsest*. Our wet machine or pulp felts are *unequaled* for *durability*. Every felt guaranteed to give satisfaction or may be returned.

COBURN-TAYLOR MFG. CO.,
Holyoke, Mass.
IMPROVED RAG CUTTER.
An economical Labor Saving Machine, suitable for all classes of Paper Mills.

CORRESPONDENCE SOLICITED.

PRICES CURRENT.

NEW YORK MARKET.

Paper Market.

DEALERS' SELLING PRICES.

Ledger and Record	$0.18	@	$0.24
Flat Caps, superfines	14	@	17
Flat Caps, fines	[11½	@	13
Flat Caps, engine sized	7½	@	9
Blotting, American	8½	@	17
Blotting, English	19	@	....
Book, super sized and calendered	6	@	7½
Book, super sized and tinted	6	@	7½
Book, extra machine finish	5½	@	6½
Book, machine finish, low grade	5	@	5½
News, No. 1	5	@	5½
News, rag and wood	4½	@	5¼
News, straw	5¼	@	5¾
Poster	6	@	10
Hanging, superfine, No. 1	7	@	8
Hanging, superfine, No. 2	7	@	7½
Hanging, machine satin	6	@	6¾
Hanging, white blank, No. 1	5½	@	6
Hanging, curtain	5	@	5½
Hanging, buff	4	@	....
Hanging, brown	3½	@	3¾
Colored papers, double mediums	7½	@	8½
Colored papers, glazed medium	8½	@	10
Colored papers, tobacco	8½	@	9½
Colored papers, tissues, 20×30, ℔ ream	1.10	@	1.35½
Tissues, black, 20×30, per ream	1.40	@	1.50
White tissue, 20×30, ℔ ream	85	@	1.00
White tissue, 24×36, ℔ ream	1.30	@	1.50
Manillas, Flour sack, cream	10½	@	12
Manillas, Flour sack, drab	9½	@	11
Manillas, Rope, unbleached No. 1	9½	@	11
Manillas, Rope, unbleached No. 2	7½	@	9
Manillas, No. 1, light weight	6½	@	6¾
Manillas, No. 1, heavy weight	6½	@	6½
Manillas, No. 2	5	@	6
Manillas, Bogus	2	@	3
Wrapping Parchment	16	@	20
Tissue Manillas, full count, weight and size, 24×36, other sizes in proportion	75	@	80
Hardware, light colored, No. 1	9	@	10
Hardware, No. 1, glazed, tarred	7	@	8
Hardware, No. 1, glazed	5	@	6
Binders' Boards, ℔ ton, No. 1	70.00	@	90.00
Binders' Boards, ℔ ton, No. 2	40.00	@	50.00
Strawboards, air dried, No. 1, ℔ ton	45.00	@	....
Strawboards, steam dried, XXX, ℔ ton	35.00	@	....
Strawboards, steam dried, XX, ℔ ton	32.50	@	....
Strawboards, steam dried, X ℔ ton	30.00	@	....
Strawboards, air dried, Penn., ℔ ton	35.00	@	....
Strawboards, air dried, State, ℔ ton	37.50	@	40.00
Straw Wrapping, basis, 15×20, 15½ lbs. 20 sheets—			
36×40, from 38 to 42 lbs. ℔ rm	83	@	....
30×40, from 30 to 34 lbs. ℔ rm	68	@	....
24×36, from 24 to 26 lbs. ℔ rm	68	@	....
22×32, from 24 to 26 lbs. ℔ rm	60	@	....
20×30, 21 lbs., ℔ rm	46	@	....
20×30, from 14 to 17 lbs. ℔ rm	34	@	....
16×22, from 12 to 13 lbs. ℔ rm	30	@	....
18×28	30	@	35
15×20, 10 lbs. ℔ rm	22	@	22
15×20, from 7 to 8½ lbs. ℔ rm	....	@	17
14×18	15	@	16
12×16	13	@	14
11×15	11	@	12
Straw Wrapping, ℔ lb., heavy weight	1¾	@	1.90
Straw Wrapping, ℔ lb., light weight	2¼	@	2½
Cigarette Straw Tissue, per case of 100 boxes, 50 books to the box, 300 sheets to the book	30.00	@	35.00
Tea Papers, 16 sheet quires—			
12×18	21	@	23
14×20	28	@	30
Card Middles, ground wood	5½	@	6¼
Card Middles, long fibre wood	8½	@	9
Card Middles, rag and wood	6	@	9
Wood Fibre, bleached	3½	@	....
Wood Fibre, unbleached	3¼	@	....

Japanese Rags.

Whites, ordinary	....	@	1⅝
Blues, ordinary	....	@	1½
Blues, selected	....	@	1¾

Chemicals, Coloring Materials, &c.

Alkali, 48 ℔ cent	1.50	@	....
Alum, Jump	1.75	@	....
Alum, ground	1.85	@	....
Alum, Keystone	1½	@	....
Alum, Diamond	....	@	2¼
Alum, pearl	2¼	@	2½
Alum, porous	2½	@	2¾
Aluminous Cake	....	@	1¾
Anti-Chlorine	....	@	2¾
Bichromate Potash, American	10½	@	12
Bleaching Powders, spot and to arrive	1.50	@	1¾
Cambridge Ochre	11.25	@	....
Caustic Soda, 60 ℔ cent	....	@	2.80
Clay, China, English, ℔ ton	12.50	@	17.00
Clay, China, "Star"	12.50	@	....
Clay, China, "Keystone"	10.75	@	....
Clay, South Carolina, ℔ ton	9.50	@	10.00
Clay, Terra Alba, French, ℔ ton	1.00	@	1.12½
Clay, Terra Alba, American, No. 1	95	@	1.00
Corn Starch	2½	@	2¾
Copperas, American	70	@	75
Extract Logwood	9½	@	....
Mineral Pulp	10.25	@	....
Orange Mineral	8	@	9½
Potato Starch	4½	@	4¾
Prussian Blue, dry	20	@	25
Prussiate Potash, American	18½	@	19
Rosins, common to good strained, ℔ bbl.	1.40	@	1.45
Rosins, E, ℔ bbl	....	@	1.55
Rosins, F, ℔ bbl	....	@	1.70
Rosins, G, ℔ bbl	1.80	@	....
Rosins, H, ℔ bbl	1.90	@	1.92½
Rosins, I, ℔ bbl	2.25	@	....
Rosins, K, ℔ bbl	2.35	@	2.40
Rosins, M, ℔ bbl	....	@	2.70
Rosins, N, ℔ bbl	3.30	@	....
Rosins, W G, ℔ bbl	3.35	@	....
Sal Soda	....	@	1
Soda Ash, caustic, 48 ℔ cent	....	@	1 50
Soluble Blue	40	@	55
Spanish Brown	½	@	1
Sugar Lead, white	12	@	13½
Sugar Lead, brown	....	@	8
Sulphate of Alumina	....	@	2½
Sulphuric Acid, 66 ℔ cent	1	@	1¼
Ultramarine, blue	7	@	25
Venetian Red	1	@	1½
Vitriol, blue	5½	@	5¾
Yellow Ochre, Rochelle	1.35	@	1.50

BOSTON MARKET.

Paper Stock.

Mill Assorted Whites	4¼@	...
Cotton Canvas	4½@	4¾
Cotton Canvas, No. 2	2½@	...
Gunny Bagging	1¾@	2
Gunny Bagging, No. 2	... @	...
Shivey Bagging	1¾@	...
Waste Woolens	¾@	1
Jute Butts	1 15-16@	2
White Collar Cuttings	2¼@	3
White Envelope Cuttings	3¼@	3½
Hard White Shavings, No 1	3 @	3¼
Soft White Shavings, No. 1	2½@	2⅞
White Shirt Cuttings	5½@	...
Country White Rags	4¾@	4½
Country Mixed Rags	1¾@	2
City Whites, No. 2	3⅝@	3½
Seconds, Country	3 @	3¼
White Shavings, No. 2	1½@	2
Mixed Shavings (¾ white)	1¾@	1¾
Imperfections	1 @	1⅛
Book Stocks	1¾@	1⅞
Light Prints	1 @	1⅛
Manilla Papers, old	2¼@	2¼
Hardware and Manillas	10.00@	...
Strawboard Cuttings	12.00@	15.00
Linen Canvas	3¼@	3½
Colors	1 @	1½
Manilla Rope	2⅝@	2¾
Binders' or Tar Board Cuttings	1¼@	1½
Common Papers	½@	¾
Oakum Junk	2¼@	3
Hemp Rope, Tarred	2½@	...
Rigging	4¾@	4⅞

New Papers.

Superfine Book	7 @	8
Fine Book	6 @	7
News, rag and wood	5¾@	6
News, No. 1, all rag	6 @	6½
Manilla, Cream Rope	9½@	10
Manilla, No. 1, Rope	8½@	9
Manilla, Extra Jute	6 @	6½
Manilla, Jute and Gunny	5¾@	6
Manilla, No. 2	5 @	5½
Manilla, Bogus	4 @	5
Hardware, No. 1, tarred	7½@	8½
Hardware, No. 2	7 @	8
Hardware, red	5 @	6
Strawboards, air dried, ℔ ton	50.00 @	60.00
Strawboards, steam dried, ℔ ton	30.00 @	40.00
Straw Wrapping, heavy	1.90 @	2¼
Straw Wrapping, light	2½@	2½
Binders' Boards, ℔ ton	53.00 @	60.00
Leather Board, Common, ℔ lb	3 @	4
Leather Board, counter	5 @	8
Leather Board, extra	8 @	10
Tar Boards, ℔ ton	100.00@	110.00

English Rags, &c.

Fines	3½@	3¾
Outshots, cotton	3 @	3½
Seconds	1⅝@	1¾
Seconds, extra	2 @	2⅛
Thirds	1⅜@	1⅞
New Print Tabs	2⅛@	2¼
Checks and Blues	2 @	2⅛
Light Prints	1¾@	1⅞
Light Fustians	1¾@	1⅞
Dark Fustians	1¾@	1⅞
Black Calicoes	1¾@	1¾
Gunny Bagging, No. 1	1¾@	2
Gunny Bagging, No. 2	1¾@	1¾
Mixed Bagging	1⅜@	1½
Rope Manilla	2½@	2⅝
Rope Manilla, tarred	2½@	...
Jute Ropes	2½@	2¼
Jute Threads	2¼@	2⅜

English Old Papers and Shavings.

Soft Shavings, No. 1	2⅜@	2½
White and Colored Shavings, No. 1	1¾@	1⅞
White and Colored Shavings, No. 2	1½@	1⅝
Cream Post Shavings	2¾@	2⅞
Paper Collar Cuttings	2½@	2⅝
Ledgers	2¼@	2½
Books and Pamphlets, extra	1¾@	1⅞
Old Newspapers and Pamphlets	1¼@	1½
Broken News and Letters	1 @	1⅛
New Books, solid folios	... @	2
Old Blank Books	... @	2¼
Old Printed Books	2¼@	2½
Buff Railway Sheets	1⅝@	1¾
Railway Tickets	1¾@	1⅞

Leghorn Rags.

P P, No. 1 Linens	.... @	....
S S, No. 2 Linens	.... @	....
T T, No. 3 Linens	.... @	....
P, No. 1 Cottons	.... @	....
S, No. 2 Cottons	.... @	....
T, No. 3 Cottons	.... @	....

Alexandria Rags.

Whites	1¾@	1¾
Blues	1¾@	1¾
Colors	1½@	1¾

Smyrna Rags.

Whites	1¾@	1¾
Blues	1¾@	1¾
Reds	1½@	1¾

Chemicals.

Alkali, 58 ℔ cent	1.15 @	1.20
Alkali, 36 ℔ cent	1.30 @	1.50
Aluminous Cake, currency	1¼@	1¼
Alum, American ground	2 @	2¼
Alum, American lump	1¾@	2
Anti-Chlorine	8 @	8¼
Bi-Chromate Potash, American	10½@	....
Bleaching Powders	1.37½@	1.40
Blackley Blue	2.00 @	3.00
Caustic Soda, 70 ℔ cent. (for 60 ℔ cent.)	2.30 @	2.32½
Clay, English, ℔ ton	14.00 @	18.00
Clay, American, ℔ ton	13.00 @	14.00
Copperas, ℔ lb	7½@	1
Extract Logwood	5½@	6½
Lime, Rockland, ℔ bbl	95 @	1.00
Prussian Blue, ℔ lb	50 @	60
Prussiate Potash, American, yellow	... @	18½
Prussiate Potash, red	51 @	52
Rosin, common strained, ℔ bbl	... @	...
Rosin, E	... @	1.45
Rosin, F	1.50 @	...
Rosin, G	... @	1.55
Rosin, extra pale	... @	...
Sal Soda, English, ℔ lb	... @	95
Soda Ash, 48 ℔ cent. caustic	1.30 @	1.40
Soda Ash, 48 ℔ cent. carbonated	1.30 @	1.40
Soluble Blue	55 @	65
Sugar Lead, white	12½@	13
Sugar Lead, brown	7½@	8½
Sulphuric Acid, 66°	1½@	1¾
Terra Alba, ℔ ton	15.00 @	20.00
Ultramarine, ℔ lb	12½@	16
Venetian Red, ℔ lb	1¾@	1¾
Vitriol, Blue	5½@	5¾
Yellow Ochre	1½@	2

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Twenty-five cents per line of eight words each insertion. No charge less than one dollar.

WANTED—A FIRST-CLASS FOREMAN FOR mill making news, book and colors; only first-class man need apply. Address F., care of Paper Trade Journal.

WANTED—PLATER; SECOND HAND AND in good order. Address Room 1, Potter Building, New York.

AN INCORPORATED INSTITUTION, making news wants a party with $25,000 to $30,000 to invest with services to increase capacity. Address C. A. D., care of Paper Trade Journal.

WANTED.

A large mechanical pulp mill in Sweden, all ready, now partly refining its product in hydraulic pressed goods, wants a competent man experienced in this particular branch as manager for this department. Address A. A., care of Paper Trade Journal, specifying what articles you have hitherto produced of this kind and stating pretensions regarding remunerations.

WANTED—A POSITION RUNNING MAchine, either Fourdrinier, Harper or double cylinder; experienced on flour sack, manillas, &c.; accustomed to water and steam finish; good references; strictly temperate. Address P. O. Box 161, Lambertville, N. J.

WANTED—POSITION AS MACHINE TENder, by a first-class man; can furnish best of references as to character and ability. Address J. S. S., care of Paper Trade Journal.

WANTED—POSITION AS SUPERINTENDent of paper mill making book, news and engine sized writing; practical experience; satisfactory references given. Address W., care of Paper Trade Journal.

WANTED—TO RENT, OR WILL BUY, A first-class paper mill, capable of producing book, news or manillas; easy of access to New York market. Address, with full particulars, D., care of Paper Trade Journal.

WANTED—STACK OF CHILLED ROLLS, not less than 54 nor more than 62 inches face; must be moderate in price. Address, with description, price, condition, &c., MENTZEL & SONS, Baltimore, Md.

WANTED—TWO MACHINE TENDERS AND two back tenders capable of tending modern fast running Fourdrinier machine on book and manilla papers. Address, giving experience and references, P. P. C., care of Paper Trade Journal.

WANTED—MACHINE TENDER TO RUN cylinder machine; must be sober and thoroughly understand manilla papers; wages $3. Address, with references, H. & W., Paper Trade Journal.

MILLWRIGHT AND MACHINIST WOULD like a change; to fit up new mill or look after repairs; good references. Address MILLWRIGHT, care of Thomas Beattie, Esq., 62 Douglass street, Germantown, Pa.

WANTED—SIX DRYERS, 50 TO 56 INCH; second hand and in good order. Address DRYERS, Care of Paper Trade Journal.

FOR SALE—ONE SECOND-HAND JORDAN engine, as good as new. Address EMERSON MANUFACTURING COMPANY, Lawrence, Mass.

FOR SALE, CHEAP—ONE HEAVY RAG AND rope cutter, our own make; been used a short time; in perfect order. Write for cut and description. SIBLEY MACHINE COMPANY, Norwich, Conn.

THE KEYSTONE LUBRICANT COMPOUND, for use on paper mill machinery, is the safest, purest, cleanest and most economical form of lubricant ever discovered. One pound of Keystone Lubricant will do the work of two gallons of lard, neat's foot, castor or any known oil. It is absolutely free from acid and grit, will not run or gum, and reduces friction over other oils from 50 to 80 per cent. KEYSTONE LUBRICATING CO., Office, No. 109 North Front Street, Philadelphia, Pa.

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Plant suitable for paper mill or paper box factory; strawboard factory within half mile; abundant water power; good location for straw and shipping; good buildings; switch; terms to suit. Address LOCK BOX 905, Penn Yan, N. Y.

"GO SOUTH, YOUNG MAN!"

For sale, to a man who understands the paper business, a half interest in a paper mill and pulp mill, situated in the South; mill running full time; established trade; paying; healthy section; capacity of mill, two tons per day. Write to R. R. R., care of Paper Trade Journal.

FOR SALE.

Several Dog Cutters, made by Rice, Barton & Fales Iron and Machine Company, Worcester, Mass. Some of above cutters are now in use: One 76 inch, two 52 inch, two 45 inch. ALBION PAPER COMPANY, Holyoke, Mass.

FOR RENT OR SALE.

SPLENDID OPPORTUNITY.

Large building or will build to suit; splendid water front; good water, also power; low rent; three minutes from Philadelphia; good location for paper mill, or will build paper mill with machinery to suit a good tenant. Address S., Box 20, Camden, N. J.

FOR SALE.

A 72 inch Fourdrinier machine with gun metal couch and press rolls, ten dryers, 28 inches diameter, two stacks of calenders, nine rolls in each stack, reels and cutter, all in good condition; can be seen running in our mill until April 1, 1890. For further particulars address the W. B. OGLESBY PAPER CO., Middletown, Ohio.

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I beg to call attention to the fact that I am prepared to supply mills with Hemp, Sisal and Jute Twines of every description, and ask manufacturers to send me samples of such papers as they make, with lowest prices.

JOHN CROTTY, 428 Broome St., New York.

FOR SALE.

ESSEX PAPER MILL,

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Built in the most substantial manner of brick and stone. Water Power of 32 feet fall from the Morris Canal; three Steam Engines of 200, 40 and 30 horse power; eight Rag Engines and Washers; 62 and 84 inch Fourdrinier Machines; eight Tenement Houses; Coal by canal or railroad at a low price; Freights from New York City on Paper Stock or Paper, 70 cents per ton. Will be sold low and on easy terms. Address ROOM 54, 150 Nassau Street, New York.

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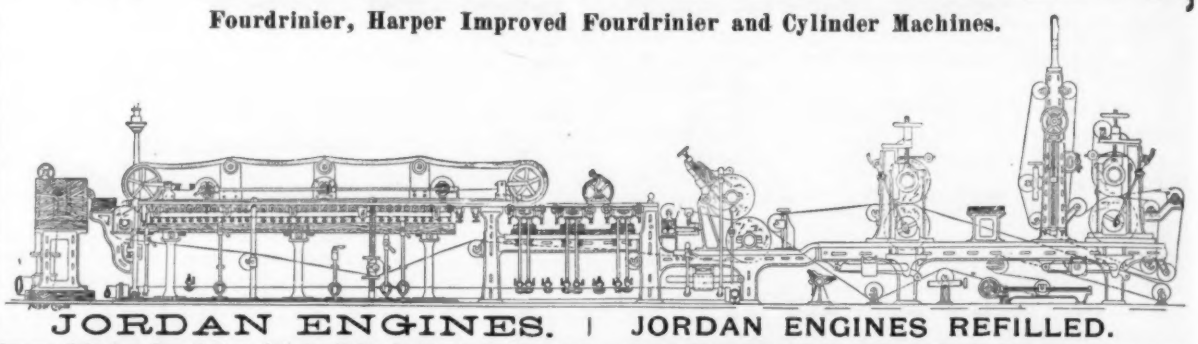
—MANUFACTURERS OF—

PAPER MILL MACHINERY,

Fourdrinier, Harper Improved Fourdrinier and Cylinder Machines.



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One 90 inch Rice, Barton & Fales Fourdrinier, eight 48 inch diameter Dryers, Marshall Driving Train.
One 76 inch Fourdrinier, ten Dryers; now running.
Five first-class Wet Machines, complete, 39 inches to 44 inches, for board.
Two A1 Stacks (three 12 inch Chilled Rolls) Calenders, 44 inch face.
One Board Trimmer.
Board Dryers consisting of 14,000 feet pipe and 600 Drawers; wire bottoms.
One 62 inch Fourdrinier, nine Dryers, Stack Chilled Rolls; good order.
One 84 inch Cylinder Machine.
One Holyoke Machine Co.'s 2 Ton Elevator.
One Large Rotary Bleach, Lot Beating Engines, &c.

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SAMPLES AND QUOTATIONS FURNISHED ON APPLICATION.

CHEMICAL PULP.

A FIRST-CLASS ARTICLE.

Clean, strong and good colors, in Unbleached and Bleached.

We make Pulp to suit Paper for which it is required.

Samples and prices furnished.

WM. ANGUS & CO., MONTREAL, CANADA.

WANTED!

MANUFACTURERS TO

Send us Samples of their Stock

OF PAPER ON HAND,

WITH BOTTOM TEN DAY CASH PRICES.

We buy large lots and sell all grades of

Paper, Rags and Paper Stock.

We trade Stock or Cash for Paper.

BULKLEY, WARD & CO.

14 and 16 So. 7th Street,

PHILADELPHIA, PA.

MAX COHN, DE CLERCQ & CO.,

The Belgian Paper Stock Company,

GHENT, BELGIUM,

PACKERS

OF ALL KINDS OF

Paper Stock, Flax Wastes, Gunny, Linen Thread, &c.

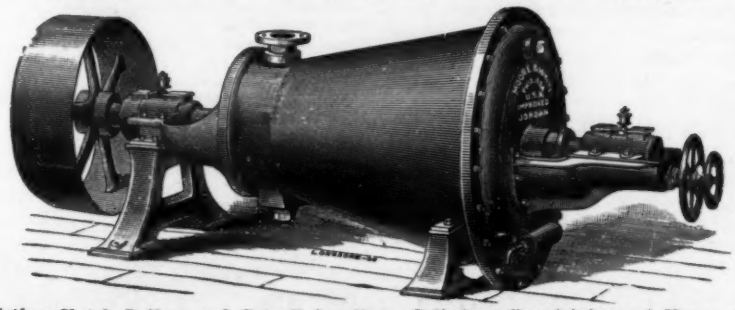
COTTON AND ENGINE WASTE DEALERS.

Assorted NEW RAGS a Specialty.

THE MOORE & WHITE CO., PHILADELPHIA, PA.,

1312, 1314, 1316 Buttonwood St.,

Builders of Paper Mill Machinery of Every Description.



Friction Clutch Pulleys and Cut-off Couplings, Cylinders, Fourdrinier and Harper Improved Paper Machines; White's Patent Stop Cutters; Cone Pulley Cutters.

ALL MACHINERY of the HEAVIEST and LATEST IMPROVED PATTERNS.

CHENEY-BIGELOW WIRE WORKS, SPRINGFIELD MASS.

Patented July 31st, 1888.

—MANUFACTURERS OF THE NEW—

PAT. ENTIRELY HOLLOW TRUSS DANDY.

LIGHTEST AND MOST RIGID DANDY EVER PUT ON THE MARKET.

PATENT SEAM WOVE DANDY COVERS.

ARTISTIC WATERMARK WORK A SPECIALTY.

Fourdrinier and Cylinder Wires, Cylinder Molds, Felt and Wire Guides, Suction Box Plates, Slitters, Lock Valves.

HANOVER CORDAGE CO.,

LIMITED, HANOVER, YORK CO., PA., MANUFACTURERS OF

SOFT FINISH SISAL TWINE,

For the Paper Trade, a Specialty. Will Not Stretch.

ALSO, MAKERS OF MANILLA AND SISAL ROPE.

WRITE FOR SAMPLES AND PRICES.

ROCKFORD ELECTRIC MFG. CO.

ROCKFORD, ILL., U. S. A.,

MANUFACTURERS OF

Arc and Incandescent Dynamos,

ALSO *MOTORS*, UNDER THE MAYO SYSTEM.

ABSOLUTELY SELF REGULATING. Can be cared for by any engineer with ordinary intelligence. It will be of **ADVANTAGE** to intending purchasers to get our prices before placing their orders.

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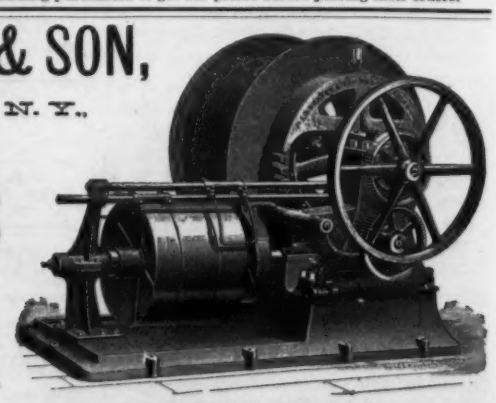


No. 10 STEEL SCREW FLOOR MACHINE. (LEFT HAND).

It has the Indorsement of Leading Bankers, Chemists and Experts.

USE

It has never been successfully altered since its introduction in 1875.

COMMERCIAL SAFETY PAPER,

TO PREVENT THE "RAISING" OF CHECKS, DRAFTS, ETC.

It is the ONLY PAPER, when once written upon, from which the INK cannot be removed, thereby preventing the "raising" of Checks, Drafts, &c.

—MANUFACTURED BY—

MOUNT HOLLY PAPER COMPANY, MOUNT HOLLY SPRINGS, PA., U. S. A.

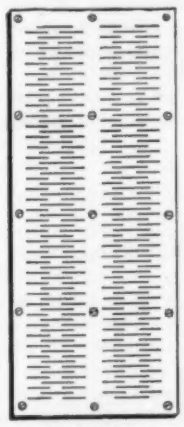
Also Manufacture a Tub Sized and Loft Dried Map Paper that will not shrink or distort, especially adapted for Printing in Colors, as well as Flat and Folded Ruled Papers of every description.

JUDSON & WILLIAMS,

Holyoke, Mass.,

MANUFACTURERS OF

Screen Plates.



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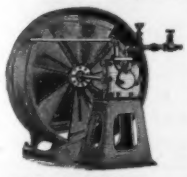
OLD SCREEN PLATES

A SPECIALTY.

CLARK'S

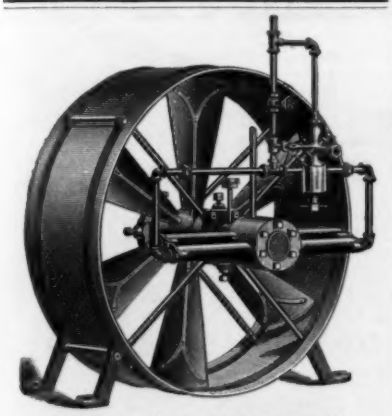
VENTILATING AND DRYING FANS,

With or without High Speed Engine attached.



Get the best in the market the **Clark Light Running, Adjustable Blade Exhaust Fan, Self Oiling Bearings**; also furnish first-class **High Speed Engine** attached to frame of Fan, when desired. Catalogue free.

GEO. P. CLARK (Box B), **Windsor Locks, Ct.**



DISK FAN OR EXHAUSTER

— AND —

JOHNSON HIGH SPEED ENGINE,

For Drying and Ventilating, Removing Steam, Dust, &c.

Specially adapted for use in Paper Mills.

— MANUFACTURED BY —

ANDREWS & JOHNSON,

59 and 61 Lake St., Chicago.

SEND FOR ILLUSTRATED CIRCULAR AND PRICE LIST OF ENGINE AND FAN.

THE MORRISON & HERRON TESTING SYSTEM.

THE MORRISON & HERRON IMPROVED PAPER TESTING MACHINES.

Three Different Machines

— FOR —

Strength, Thickness and Weight

A NEW PRINCIPLE APPLIED IN TESTING PAPER.

Thickness shown to the sixteen-thousandth part of an inch.

Used in the GOVERNMENT PRINTING OFFICE and the DEPARTMENTS at Washington.

Price, complete,	$150.00
Or Strength Indicator,	75.00
Thickness Gauge,	75.00
Paper Scale,	10.00

ADDRESS ALL ORDERS TO

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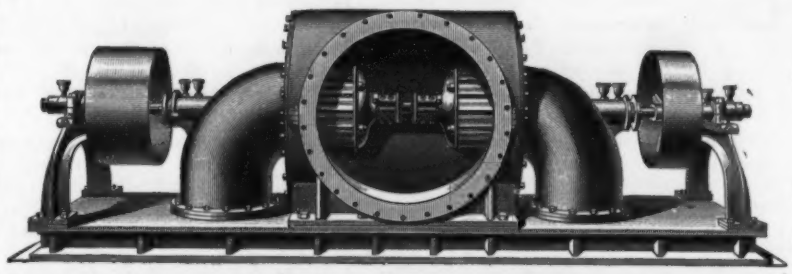
805 D Street, Washington, D. C.

CAUTION.

All persons are liable to prosecution who make, buy or use Paper Testers that confine and break paper within its edges, as my Patents cover that method.

THE VICTOR TURBINE.



THE above engraving represents a pair of 12 inch **VICTOR TURBINES** arranged on a horizontal shaft, with Cast Iron Flume, Draft Tubes, End Bearings for Shaft, and Driving Pulleys complete, all mounted upon a substantial cast iron bed plate. The entire arrangement is very complete and strictly first-class in every particular. We are now prepared to furnish Victor Turbines either single or in pairs on horizontal shafts and where the situation admits of their use we recommend them.

UPRIGHT or HORIZONTAL.

In use in a large number of best Paper and Pulp Mills in this and other Countries.

Possesses more than Double the Capacity of other Water Wheels of same diameter, and has produced the Best Results on Record, as shown in the following tests at Holyoke Testing Flume:	Size Wheel.	Head in Feet.	Horse Power.	Per Cent. of Useful Effect.
	15 inch.	18.06	30.17	.9082
	17½ inch.	17.96	36.35	.9030
	20 inch.	18.21	49.00	.8532
	25 inch.	17.90	68.62	.8584
	30 inch.	11.65	52.54	.9676

WITH PROPORTIONATELY HIGH EFFICIENCY AT PART GATE.

Such results, together with its nicely working gate, and simple, strong and durable construction, should favorably commend it to the attention of all discriminating purchasers.

THESE WHEELS ARE OF VERY SUPERIOR WORKMANSHIP AND FINISH.

THE VICTOR WHEEL Is particularly adapted to setting on **HORIZONTAL SHAFT,** DISPENSING ENTIRELY WITH GEARS.

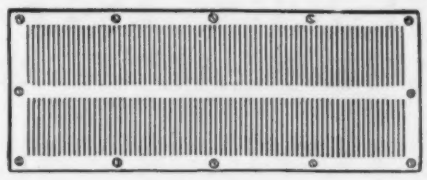
STATE YOUR REQUIREMENTS AND SEND FOR CATALOGUE TO THE

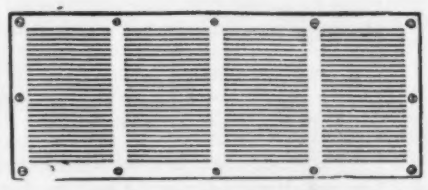
STILWELL & BIERCE MFG. CO., DAYTON, OHIO, U. S. A.

NATHAN BARNERT. ROBERT A. HALEY. WM. C. MARTIN.

ANNANDALE *Screen Plate Co.,*

PATERSON, N. J.



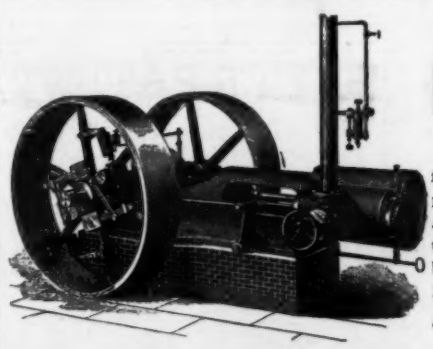


Manufacturers and Repairers of

SCREEN PLATES.

Our New Plates are made of the **VERY BEST METAL,** and for price and durability cannot be surpassed.

OLD PLATES RE-CLOSED.



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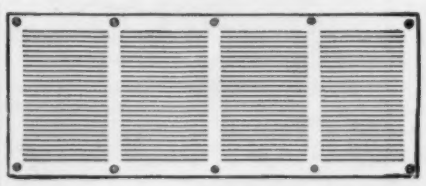
The attention of Paper Makers is called to the fact that we are prepared to make extremely low prices on Engines and Boilers of our make. Automatic Engines for Electric Lighting, Throttling Engines for ordinary work, and Boilers, both Vertical and Horizontal, from 5 to 150 Horse Power.

SEND FOR CATALOGUES AND PRICES BEFORE PLACING YOUR ORDERS.

MORRIS MACHINE WORKS, Baldwinsville, N. Y.



A. A. TRAIN,

MANUFACTURER OF

Screen Plates

OF BRASS OR CAST METAL,

☞ At Prices that Cannot be Surpassed.

21 MAIN ST. FITCHBURG, MASS.

AMERICAN STRAW BOARD COMPANY,

MANUFACTURERS OF AND DEALERS IN

Straw Boards, Lined Straw Boards,
Pulp Lined Boards, Combination Boards,
Binders' Boards, Friction Boards,

BUILDING + BOARD,

Plain Board, Tarred Board, Waterproof Boards.

GENERAL OFFICE: PULLMAN BUILDING, CHICAGO.

NEW YORK AGENCY,	75 Duane Street.
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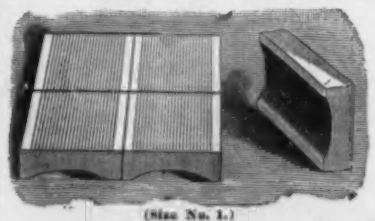
PHILADELPHIA AGENCY,	121-127 N. Fourth Street.
CHICAGO AGENCY,	152 and 153 Michigan Ave.
CINCINNATI AGENCY,	101-103 Walnut Street.



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HOLYOKE PAPER CO.,	Holyoke, Mass.
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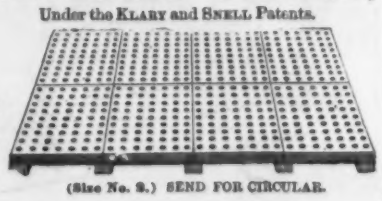
MANUFACTURER OF

FILTERING STONES,

Under the KLARY and SNELL Patents.



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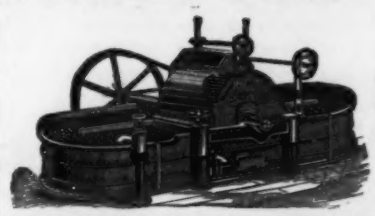
THOMPSON & CAMPBELL

(Successors to KREIDER, CAMPBELL & CO.),

1030 Germantown Avenue, Philadelphia, Pa.



W. H. RUSSELL'S SAND WASHER,

An improvement in Washing Engines.

MACHINISTS AND MILLWRIGHTS.

Manufacturers of Beating and Washing Engines, Pumps, Rag Dusters, and Paper Mill Work in General.

MILLWRIGHT WORK A SPECIALTY.

ALSO, MAKERS OF

Improved Cylinder and Fourdrinier Machines.

GEO. S. BARTON, Treas. CHAS. S. BARTON, Pres. LEWIS C. STONE, Manager.

RICE, BARTON & FALES MACHINE AND IRON CO.

(At Old Stand of Rice, Barton & Co.,)

WORCESTER, MASS.,

—MANUFACTURER OF—

PAPER MACHINERY

OF EVERY DESIRABLE VARIETY,

Iron and Brass Castings, Chilled Iron and Paper Calender Rolls, Rag Engines, Rag Cutters, Steam Pressure Regulators, &c.

HYDRAULIC PRESSES, FROM 5 TO 14 INCH PISTON.

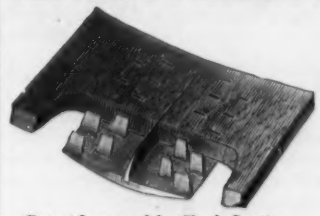
DE-OXIDIZED BRONZE, COPPER AND BABBITT METALS.

BRONZE any mixture of ***Copper*** and ***Tin*** desired—Stronger, Tougher, Purer and Denser than any Copper and Bronze not de-oxidized. Best ***"Journal Bearing Metal"*** in existence; record 200,000 miles and still running. Resists ***Acid*** and ***Acid Waters*** perfectly in ***Pumps, Valves,*** &c. ***Babbitt Metals,*** all grades, guaranteed from 10,000 to 200 speed.

THE DE-OXIDIZED METAL CO., Bridgeport, Conn.

GLOVER'S PATENT IMPROVED BELT FASTENERS.

Every Fastener Warranted.



Patent Improved for Single Leather.

THE BEST THING YET FOR PAPER MILLS.

For 4 and 5 Ply Rubber.

Manufactured by W. W. GLOVER, Aurora, Kane Co., Ill.

LINK-BELT ENGINEERING CO.

NICETOWN, PHILADELPHIA.

NEW YORK: No. 49 Dey Street.

Log Hauls for Pulp Mills,
Chip Elevators, Chip Conveyors,
Dry and Cooked Straw Conveyors,
Driving Machinery.

SEND FOR CATALOGUE.

A Question of Undervaluation.

A good deal of interest was created in the trade this week by the announcement that the United States Government had advanced the valuations in invoices of chemical fibre which was imported by A. Wertheim & Co. Investigation revealed the fact that an advance had been made on five invoices. Mr. Wertheim protested and called for a reappraisement of the goods. This reappraisement was had on Thursday, Appraiser McLean representing the Government, Geo. F. Perkins, of Perkins, Goodwin & Co., being merchant appraiser. The experts called as witnesses were Leon Gottheil, J. Fred. Ackerman, Frederick Bertuch, Joseph Tully and J. W. Lyon. The result of the reappraisement was that the advance in valuation made by the Government was sustained, and the papers affirming this advance were yesterday afternoon in the hands of the Collector of the Port awaiting his signature. The advances made ranged from eleven and two tenths to twenty-five and a half per cent. That is to say the lowest advance was eleven and two tenths per cent., and the highest twenty-five and a half per cent. This, being in every case over the ten per cent. fixed by the United States Statutes, carries with it an additional duty of twenty per cent. ad valorem on all of the invoices.

Mr. Wertheim when seen about the matter was in his usual cheerful frame of mind, and stated his case very briefly. He said that his prices as stated in the invoices were correct, and that owing to the fact that he was the largest importer and purchased larger quantities than other importers, he was able to secure lower and more favorable prices than others.

It is said that the duty on the advanced valuation and the penalty to be inflicted will amount to about $4,000. The Government is now looking up other invoices of the same firm, some of which are now under consideration.

Obituary.

EDWIN COWLES.

Edwin Cowles, editor of the Cleveland *Leader* and of the *News and Herald*, and for twenty-five or thirty years one of the most prominent figures in Ohio, died on Tuesday, March 4. He had been in ill health for five or six years, and had determined upon another trip to Southern France, where he had recently spent a year or more. He leaves a widow, one daughter, Mrs. Charles W. Chase, and three sons, Eugene H., Alfred H. and Louis H. Cowles.

Mr. Cowles was born in Austinburg, Ashtabula County, Ohio, September 18, 1825. He went into the printing business with Mr. Smead. They remained together until 1853, when he became a member of the firm of Medill, Cowles & Co., publishers of the *Forest City Democrat*, which was a consolidation of the *True Democrat* and the *Forest City*. The name *Forest City Democrat* was changed to the Cleveland *Leader*. A year after that Mr. Cowles' partners went to Chicago and bought the *Tribune*, of which Alfred Cowles was business manager. In the winter of 1854-5 the germ of the Republican party was formed in the *Leader* editorial rooms, as a meeting was held there which resulted in the first Republican Convention, which was held at Pittsburg.

Until 1866 Mr. Cowles was the proprietor of the *Leader*. At that time the *Leader* Printing Company was formed and he was made business manager, and subsequently became editor in chief. In 1861 he was appointed Postmaster of Cleveland and held the office five years, at which time he established the free delivery system.

WALTER C. BLANCHARD.

Walter C. Blanchard died on February 26 at Malden, Mass. He was born in Malden thirty-one years ago. From the grammar and high schools he passed into Amherst College, but before graduation entered the employ of Ward & Gay, well-known stationers in Boston. In this business he continued, of late as a member of the Samuel Ward Company. His business ability, strict integrity and courteous manner won the regard of all with whom he was associated.

Mr. Blanchard was twice married, first to Etta Paige, of Malden, and more recently to Florence M. Coulter, of Dorchester, who with one daughter survives him.

JOHN PALMER PARSONS.

John Palmer Parsons, second son of William H. Parsons, of W. H. Parsons & Co., paper dealers, New York, died at Rye, N. Y., on Thursday, February 27. The funeral services were held in the Presbyterian Church at Rye on Monday afternoon last and were very largely attended.

John Palmer Parsons was born in Rye on June 3, 1863, and was graduated at Yale College, being a member of the class of '83. After graduating he went abroad and spent something over a year traveling in Europe, and on his return was for a few months in the office of his father's firm in New York. He next removed to West Newton, Pa., becoming treasurer of the Westmoreland Paper Company. He remained at West Newton for about a year and a half, and during that entire time was active in good works. He was instrumental in organizing a local Young Men's Christian Association, of which he was elected president. Last spring he went to Saugerties to take charge of the bisulphite works of the Barclay Fibre Company, and while at that place last June he met with a very serious accident. In the following August he went to Europe in company with his father, returning in November. His health was not of the best, but he partially resumed his duties at Saugerties. Recently he paid a visit to his sister at Rye, and while there was attacked with the affliction which ended fatally. He was a bright, able man, full of promise; of modest, quiet demeanor, and his death has brought expressions of sincere regrets from many both in and out of the trade. His influence was steadily and constantly for good, and he was a decided favorite with all who knew him. On the day of his funeral the Westmoreland Mills were shut down and the employees devoted themselves to a memorial service.

FREDERICK J. COLLINS.

Frederick Johnson Collins died at his residence in Lynn, Mass., on February 26, after a short and severe illness, the disease being peritonitis. His age was nearly thirty-two years, his birthday occurring on March 9. Mr. Collins was a native of Lynn. At the age of thirteen he graduated from the Cobbet school, remaining another year before he entered the high school, at which time he entered the high school with the highest percentage of any scholar in the city. At his graduation from the high school he was awarded a gold medal for excellent scholarship. He entered Wesleyan University, Middletown, Conn., where he immediately took high rank in mathematics, carrying off prizes in the department of mathematics in his freshman and sophomore years, and in his junior year was selected to represent the college in the branch of mathematics in an intercollegiate contest in New York city. He graduated with honor in 1879 and immediately entered into business with his father, George Z. Collins. He was a methodical, hard working and successful business man, and was the owner of an extensive leather board mill in Ashland, N. H., known as the Valley Mill. He married E. Annette Burgess, by whom he had two children. He was a communicant of St. Stephen's Episcopal Church, and took great interest in its welfare. He was a member of the Odd Fellows.

Frederick L. Schneider, bookseller, &c., New York, is dead.

Walter L. Childs, of W. L. Childs & Son, dealers in paper hangings, New York, is dead.

Manufacturing News.

EASTERN STATES.

The John H. Horne & Sons Company, Lawrence, Mass., has now shipped eleven carloads of machinery to the Wilkinson Paper Company, Banning, Ga.

The Deerfield River Company, Readsboro, Vt., has just put in eight of the Millard hydraulic feed wood pulp machines.

MIDDLE STATES.

The Felt's Mills Paper Company, Felt's Mills, N. Y., has ordered several Millard wood pulp grinders to complete the equipment of its new pulp mill.

The Great Bend Paper Company, Great Bend, N. Y., is running three Millard wood pulp grinders, which are said to be producing excellent results, with a saving in power and an increased product.

The Cliff Paper Company, Niagara Falls, N. Y., has ordered two more 1,000 pound Umpherston patent engines to supply stuff for its new machine.

C. R. Remington & Son, Watertown, N. Y., have put in two Millard pulp grinders.

Knowlton Brothers, Watertown, N. Y., are using the Millard system of hydraulic feed for grinding wood pulp.

WESTERN STATES.

A paper mill is projected at West Salem, Ohio.

A paper mill to cost $100,000 is being erected at Arkalow, Kan. It is said that sugar cane chips will be used for stock.

Work on the construction of the paper mill at La Crosse, Wis., has begun. The mill will have a stone basement and two story brick superstructure, and will be ready to start up by July 1.

The Bardeen Paper Company, Otsego, Mich., has paid William Crispe $3,200 for that portion of his farm extending to the Kalamazoo River, known as Munn's flats, for the purpose of flooding the land whenever necessary to use the full power of the Kalamazoo River. This is the same property for which the courts allowed a damage of $550 by being flooded by the Otsego dam. The transaction is very profitable for Mr. Crispe, as the whole farm cost him only $2,900.

It is proposed to build a paper mill of 5 tons daily capacity, at Black River Falls, Wis.

A pulp mill is projected at Bay City, Mich.

The Haldeman Paper Company, Lockland, Ohio, recently placed an order with the J. Morton Poole Company, of Wilmington, Del., for one of Umpherston's patent beating engines.

It is reported that a paper mill will soon be built at Ottawa, Ohio.

Marquette, Mich., is to have a wood pulp and paper mill.

The new mill of the Fox River Paper Company, Appleton, Wis., has a Fourdrinier machine built by the Beloit Iron Works. This machine has a 50 foot wire, gun metal and rubber covered press rolls, eighteen dryers on the first section, part double deck with top felt; sizing rolls, second section dryers eight in number, part double deck with top felt, stack of heavy calenders, heavy upright reel, slitter and Manning winder. The machine was started up at 2 o'clock P. M. on the 6th ult., and in twenty-five minutes the paper was on the reel and all adjustments were made, and it was run until 6 o'clock without a break or hitch of any kind. This machine has been the object of considerable inspection. It was built throughout from the heaviest patterns and of improved design. A representative of an Eastern house well up in this line of work is said to have remarked: "There is nothing in the East or West equal to it in construction or finish."

SOUTHERN STATES.

A large paper and fibre mill, to cost $300,000, is said to be under construction at Monmouth Springs, Ark.

L. C. Wolkins, 96 Arch street, Boston, and others are laying their plans to build a paper and pulp mill in North Carolina, the location not yet having been chosen.

A paper mill to have a daily capacity of 5 tons is being erected at Whitesburg, Ga.

General Notes.

The increasing use of the Pulsometer steam pump affords good evidence of appreciation of its merits. This pump is available for raising water for any kind of manufacturing or fire purpose, and all testimonials affirm its efficiency.

The Umpherston patent rag engine is being largely appreciated and used by the paper makers of this country, the American builders having already had orders for ninety-eight engines which are in use on all grades of paper.

The National Water Purifying Company reports contracts just closed with Thomas Dawson & Co., dyers, Philadelphia, Pa., and the Cincinnati Ice Manufacturing and Cold Storage Company, Cincinnati, Ohio, for "National" filter plants.

The Millard wood pulp grinder has a hydraulic feed the regulation of which is said to be admirable. This grinder has been put into a number of mills, and with the result, it is claimed, of great saving in power, with increased capacity of production.

Merchant & Co., Philadelphia, have issued a form of specifications for flat seam or standing seam tin roofs, using either 14x20 or 28x20 inch size sheets. In bringing out their roofing plates stamped with the brand and thickness, and doing away with the waster sheets, it has been the object of this house to put upon the market not only an article which the architect can specify with security, but also one which will enable the property owner to receive what he is willing to pay for. There is to-day a difference of almost 100 per cent. in price between the poorest and the best roofing plate in the market. Nearly every brand imported is of two different qualities—that is, good plates and bad, or wasters. It is absolutely necessary in these days of competition that specifications should be drawn so as to hold each roofer up to his contract. Even the soldering of a roof is such an important matter that the roofer who uses soldering irons weighing only 4 pounds to the pair cannot possibly apply the amount of solder to the square that should be used; consequently heavy soldering irons should be used so as to allow the solder to soak well into the seams where a first-class job is wanted. The very best material if not properly put on would make the roof a failure. With the purpose of assisting the architects these specifications have been drawn up.

The confession of Daniel Carmichael, the paper maker, whose extensive forgeries came to light in November last, has been made public; but really adds nothing to the story of the crime, and conveys no other explanation than that already derived from the history of the case. This confession, made in December, is to the effect that his business had involved him in distressing obligations owing to the severe competition and cut of prices in the market. Notes indorsed by his brother and John McFarlin, he said, both of whom had stood him over many a rough sea, were coming in for collection. He knew not how to meet them, and to protect the indorsers he forged acceptances on his New York customers in anticipation of the orders he expected to receive from them, but never did. He thought if he could weather the storm until he could sell some real estate he could clear them all up. He lost calculation of the days of maturity on some of them, and was forced to desperate measures to prevent criminal prosecution and exposure. He couldn't sell his real estate, and so he forged the signatures of his brother and his best friend. As a note, good or bad, came due he substituted another. Occasionally he sandwiched a note with a genuine indorsement, either his brother's or McFarlin's, with several forgeries. This, he explained, was done in order not to excite suspicion. He did this, he said, to protect his brother and friend.

In Town.

Chas. Callender, Glendale, Mass.; E. R. Solliday and John A. Hall, Lambertville, N. J.; Chas. Fondersmith, Lancaster, Pa.; T. O. Hurlbut, Lee, Mass.; Frank Stevens, North Hoosick, N. Y.

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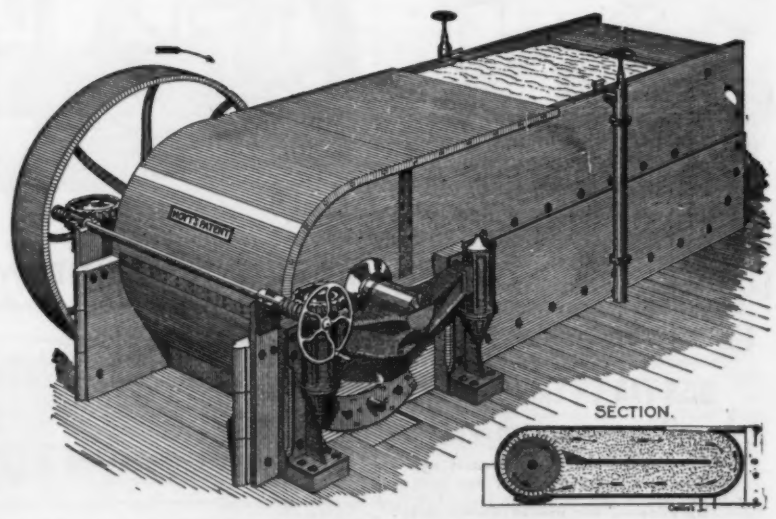

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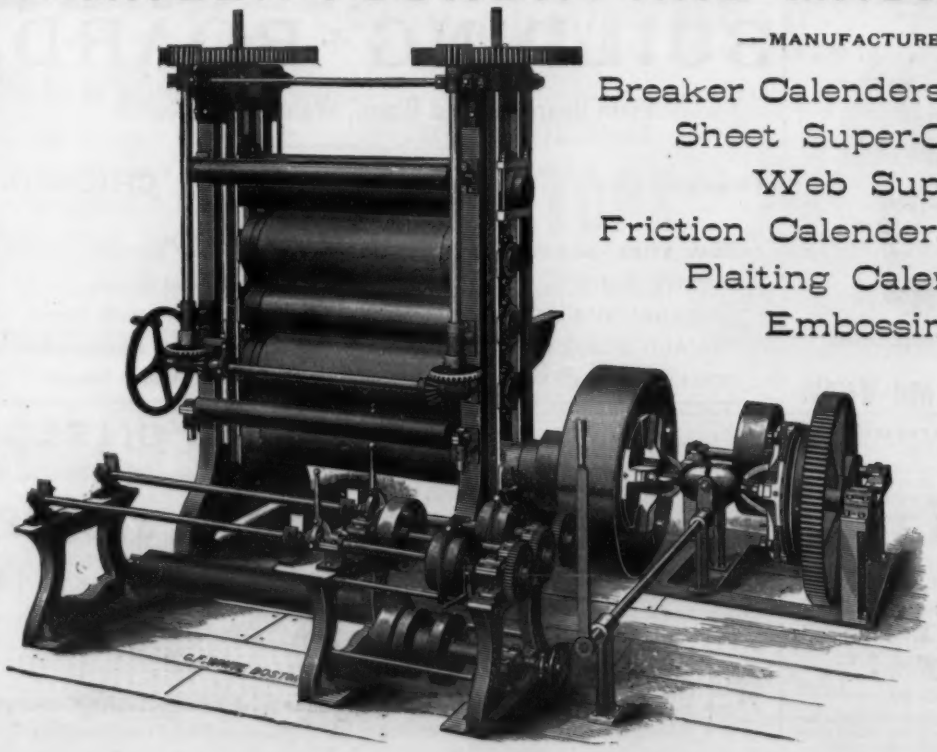

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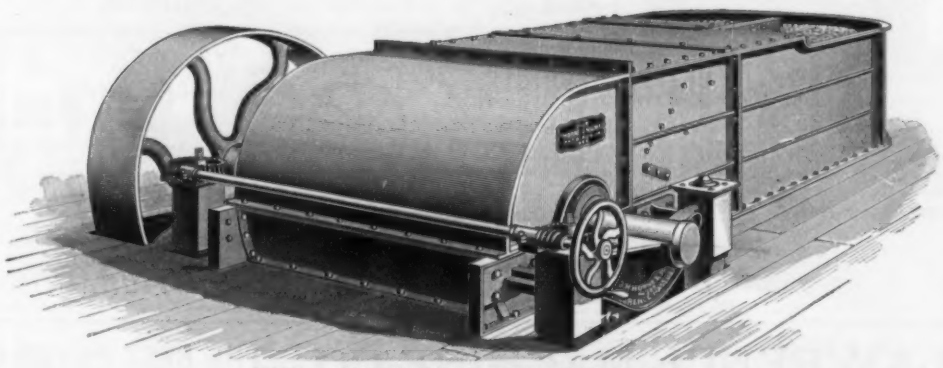

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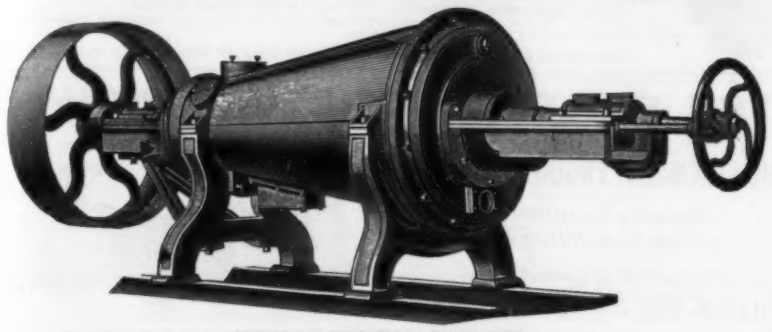

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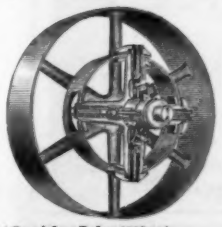

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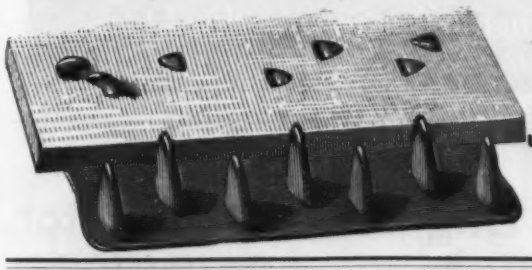

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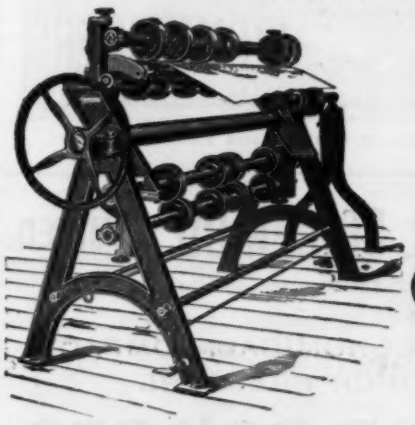

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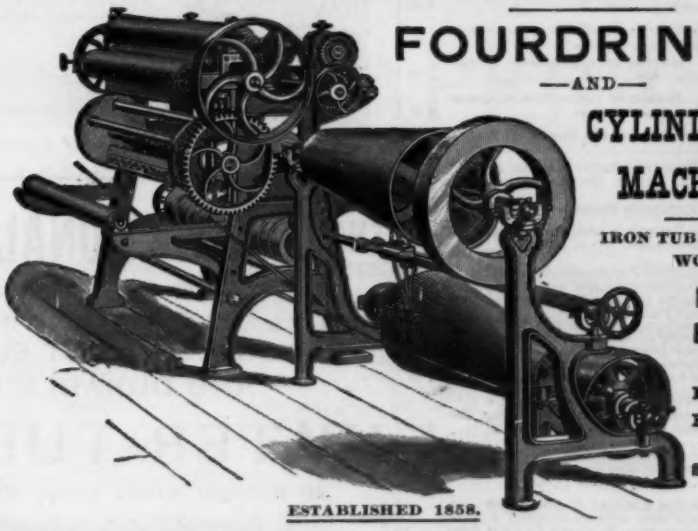

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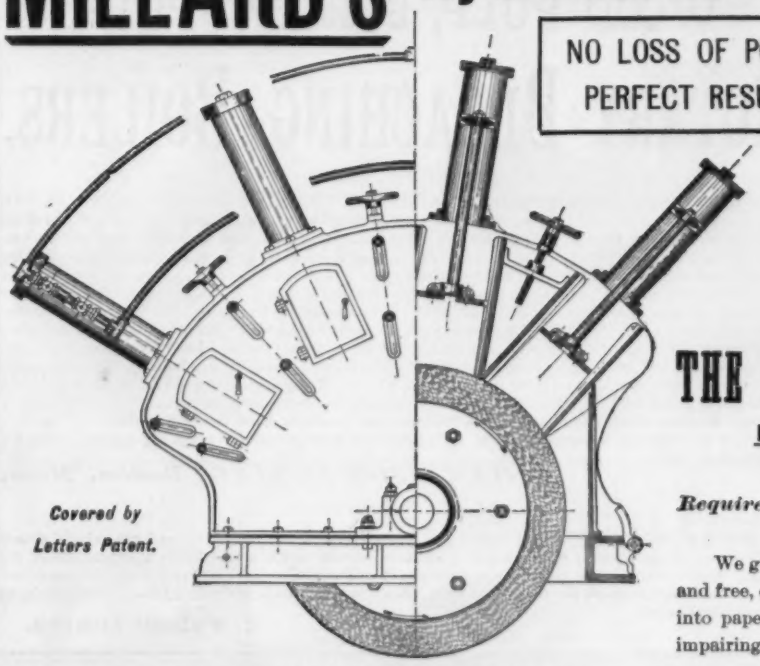

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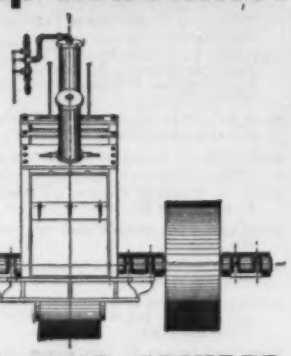

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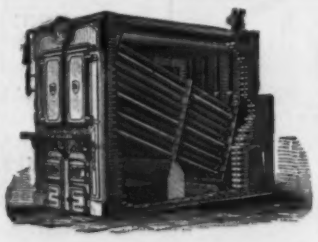

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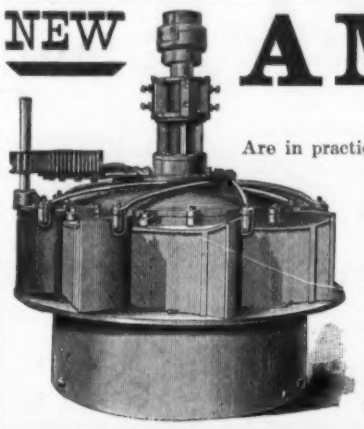

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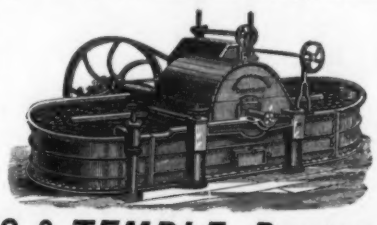

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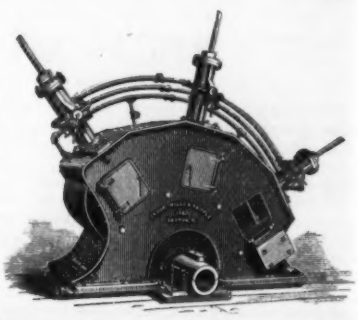

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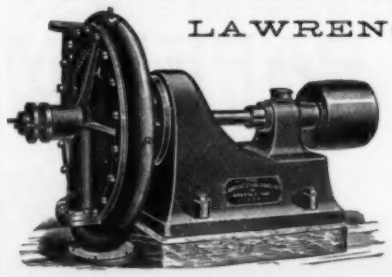

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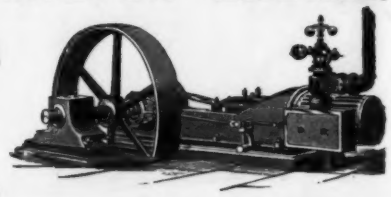

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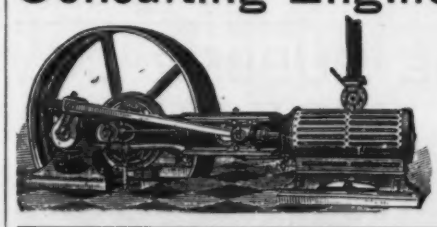


WOOD PULP, STRAW PULP,

—AND—

ROTARY · BLEACHING · BOILERS.

THOSE WHO HAVE UNSAFE ROTARY BOILERS IN USE CAN EXCHANGE THEM FOR THE Loring Patent Rotary, and can be furnished with abundant evidence that the Loring Boiler is absolutely safe, and the only safe Rotary Bleaching Boiler in use. For the production of chemically prepared wood pulp it has been found extremely difficult to make a boiler that would remain absolutely tight for any considerable length of time. I have accomplished this result by adopting modes of construction far in advance of the best methods for producing first-class boiler work, in combination with substances and methods entirely independent of boiler work, and only known to myself. I invite special inquiries in regard to my patent **WOOD PULP BOILERS**, patent **STRAW PULP BOILERS**, and Rotary Bleaching Boilers; also to my patent process for extracting water from wood and straw pulp, and to my improved Fibre or Drainer Tanks, and Fibre Valves. The common steam boilers built by the undersigned have proved more durable and safer than those of any other manufacturer in the United States. Steam boilers now in good condition that have been in constant use twenty-eight years can still be seen in use in Boston. Not one of the many thousand boilers, varying in weight from one-half to forty tons, has ever exploded or given out, to cause injury to a single person or to one dollar's worth of property, during the twenty-eight years.

HARRISON LORING, Boston, Mass.

NOTICE.—I have been informed that irresponsible boiler makers have offered to build Rotary Boilers with whole wrought iron heads and a hollow journal, which would be an infringement of my patent. Such boilers will be made by the undersigned at low prices—having special tools for the work—and no extra charge made for the patent right, which would have to be paid by the user if made by an unauthorized person.

HARRISON LORING.

THE JOHN H. McGOWAN CO.

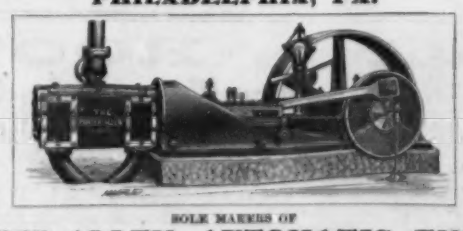
Brass Goods, Iron Pipe and Fittings.

Straight-way Valves Steam Heating.

Southwark Foundry and Machine Company,

PHILADELPHIA, PA.

BOILERS. TANKS. STEAM HAMMERS. HEAVY CASTINGS.



BLOWING AND REVERSING ENGINES. CENTRIFUGAL PUMPS. STEAM PUMPS

BOILE MAKERS OF

PORTER-ALLEN AUTOMATIC ENGINE.

HIGH ECONOMY. DURABILITY. CLOSE REGULATION

D. H. & A. B. TOWER,

ARCHITECTS,

Civil and Mechanical Engineers,

HOLYOKE, MASS.

Experts in construction of Mills and development and operation of processes for manufacture of Mechanical Pulp, Soda and Sulphite Fibre and Paper.

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17 Blackstone Building, Cleveland, Ohio,

—MANUFACTURERS OF—

Paper and Fiber Machinery.

TOMPKINS DIGESTERS.

NATIONAL SULPHITE BOILER AND FIBRE CO.

ORIGINATORS OF THE ONE-METAL DIGESTER.

WE ARE SOLE OWNERS OF THE EXCLUSIVE RIGHTS TO MAKE AND SELL

De-Oxidized and Perfection Bronze Digesters for Sulphite Fibre Mills.

WE REFER TO THE FOLLOWING PARTIES WHO ARE LICENSEES OF THIS COMPANY ONLY:

Remington Paper Co., Eastern Mfg. Co., Kimberly & Clark Co., Geo. H. Friend Paper Co., Atlas Paper Co., Willamette Pulp and Paper Co., Orono Pulp and Paper Co.

☞ WE SHALL PROSECUTE ALL INFRINGERS OF OUR RIGHTS:

FOR INFORMATION ADDRESS GARRET SCHENCK, TREASURER OF

THE NATIONAL SULPHITE BOILER AND FIBRE CO., 160 Congress Street, Boston, Mass.

THE HARDY & PINDER

Patent Cast Metal Screen Plates

HAVE STOOD THE TEST OF YEARS AND ARE ACKNOWLEDGED BY PAPER MANUFACTURERS

THE BEST IN THE WORLD!

HARDY & PINDER, Fitchburg, Mass., U.S.A.

DEXTER SULPHITE PULP AND PAPER CO.,

DEXTER, JEFFERSON COUNTY, N. Y.,

— MANUFACTURERS OF —

SULPHITE FIBRE,

MITSCHERLICH PROCESS.

The attention of Paper Manufacturers and others is directed to the Superior Quality and Strength of our Fibre.
We are now supplying very many of the largest Paper Mills.

☞ CORRESPONDENCE SOLICITED. ☞ SAMPLES MAILED.

THE INTERNATIONAL
Sulphite Fibre and Paper
COMPANY,
84 Griswold Street,
DETROIT, MICH.

DIRECTORS:
GEO. N. FLETCHER, President.
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CHARLES L. ORTMANN.

GLOBE
Sulphite Boiler Co.

OFFICES:
9 Vanderbilt Building, New York City,
— AND —
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THE attention of Paper Manufacturers and others is invited to our Lead Lined Digesters, and we solicit correspondence relative to plants for the manufacture of Sulphite Pulp.

FOUNDRY AND MACHINE WORKS,
LEE, MASS.
E. P. TANNER, Proprietor.
Paper Mill Machinery, Engines, Machines, Calenders, Trimming Presses, Rag Cutters, Pulleys, Shafting, Gearing, Screen Plates, Cylinder Molds, Engine Roll Bars, Bed Plates, &c.
IRON AND BRASS CASTINGS.

Sulphite Fibre
(MITSCHERLICH PROCESS),
Of SUPERIOR QUALITY,
GOOD and UNIFORM COLOR
and STRONGEST FIBRE.
Samples on Application. Orders Solicited.

THE E. B. EDDY MFG. CO.,
HULL, CANADA.

AMERICAN SULPHITE
PULP COMPANY,
256 Washington Street,
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DIRECTORS:
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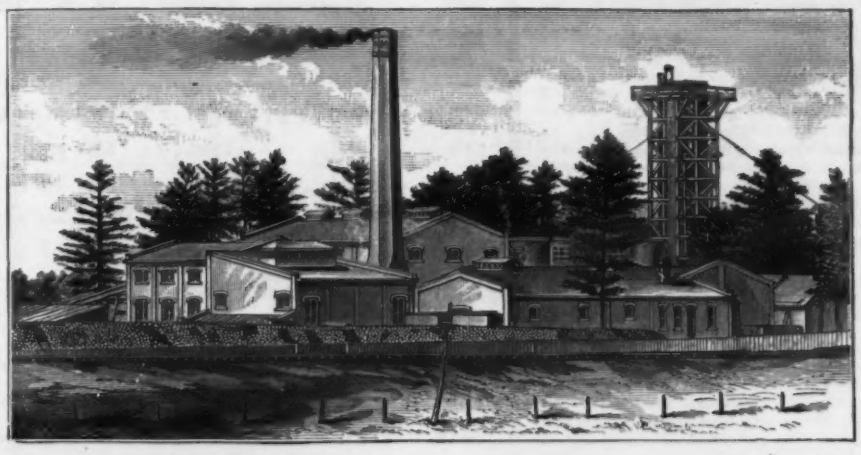
THE SIBLEY MACHINE COMPANY,
MANUFACTURERS OF
PAPER MAKING MACHINERY,
Paper Engines, Dusters, Rag, Rope and Paper Cutters, Roll Bars and Bed Plates; also Mill Gearing, Shafting, Pulleys and Hangers.
Jobbing of all kinds. Castings at short notice. Railroad Dusters, 3 to 6 cylinders, specially heavy, and the best made for all kinds of Paper Stock.
No. 132 FRANKLIN ST., NORWICH, CONN.

MICHIGAN SULPHITE FIBRE CO.,



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OFFICE:
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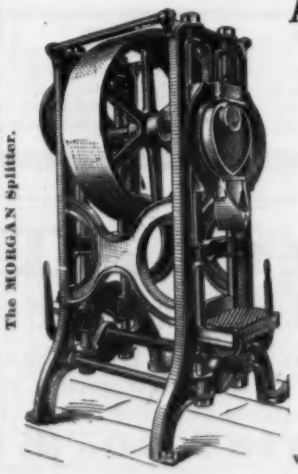
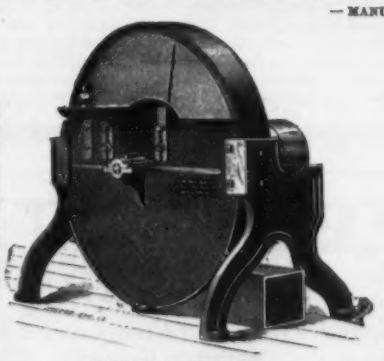
Factory at Port Huron, Mich.
☞ WRITE FOR SAMPLES.

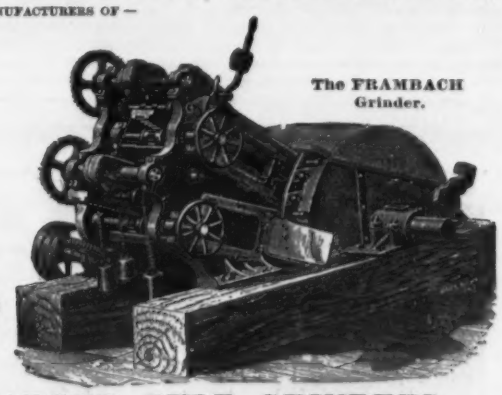
APPLETON MACHINE COMPANY, APPLETON, WIS.,
— MANUFACTURERS OF —



The MORGAN Splitter.



The MORGAN Barker.



The FRAMBACH Grinder.

THE NEW
FRAMBACH AND BADGER PULP GRINDERS,
WOOD BARKERS, SPLITTERS, BOLT SAWING MACHINES, KNOT BORERS, CHIPPERS, SULPHUR BURNERS AND WET MACHINES.

High versus Low Tension Electricity.

The attacks made upon electric companies by the press of this country and the United States may, after all, not prove an unmixed evil, but on the contrary be productive of benefit to those engaged in the constantly increasing industries of electric light and power distribution, as tending to educate the public mind and remove much of the prejudice caused by a want of knowledge on the part of the people.

There are two principal methods in use in central station practice in supplying electricity to consumers. One is known as the low tension incandescent system, using a voltage or pressure of not more than from 200 to 220 volts, and the alternating and continuous current systems, usually called high tension, and using an electro motive force of 1,000 volts and upward. The distinctively low tension system is cumbrous and costly in its operation, requiring immense conductors for its distribution, involving considerable loss of potential even under the most favorable conditions, and being entirely unsuitable for reaching over 800 yards or so from its source of power. The high tension current, on the contrary, using a comparatively small wire, can be economically carried for several miles, thus reaching at a minimum of cost, both for first outlay and subsequently for running expenses, the most distant consumer.

It is not denied that under some circumstances of faulty construction, poor material and careless or ignorant handling on the part of employees and others who should know better, these high tension currents may become a source of danger; but that is no argument that with reasonable care in construction, modern methods of insulation and increased knowledge on the part of the public, they will not be just as safe and free from accident as any of the thousand and one appliances of civilized life. There should be no more reason to condemn the use of electricity in its more advanced form, because in some cases accidents have happened, than there would be to refrain from the use of illuminating gas, or to refuse to take advantage of the quick transit afforded by the railroad train. Such a proposition would be entirely at variance with modern progressive ideas.

This is an age of advancement. There is a demand on all sides for the soft, beautiful and healthful electric light. It will be the light of the future—a future fast merging into the present—and economic considerations demand something more than the slow moving, restricted application of a low tension distribution which will not cover and has no chance to cover the area of a large city. It is the very nature of the case that the finest residences are scattered for miles around the suburbs, and being so scattered, independent stations, with restrictions of low tension currents, could not reach enough of these houses to bring the price of light even within the reach of a semi-millionaire. What is the rational conclusion? Simply that a higher tension must be used to carry the current economically to where it is wanted, and converters brought into play to reduce the potential to one perfectly safe for use in the interior of dwellings. But here comes in the howl of "danger."

It is unfortunate that the exponents of low tension systems should in their efforts at self aggrandizement seek to throw discredit upon the entire business of electric light and distribution of power, excepting only that small section which they have taken upon themselves to exploit, by inspiring the publication of sensational, exaggerated and garbled articles in the public press, and even in attempting to obtain legislation to limit the voltage of electric circuits. It is doubly unfortunate that the man whose brilliant achievements have led to his being looked upon as the father of electricity, instead of turning the light of his genius and inventive powers or efforts to extend the scope of electric developments and an improved method and protective devices to render more safe the use of such currents as are necessary to the economical distribution of electricity, should ally himself with the public executioner in his efforts to discredit a rival method which has grown and will grow despite all the opposition that can be offered to it.

The impartial judgment of an intelligent public, however, will soon be able to appreciate the significance of these efforts and sum them up at their true value. Admitted, that with improper insulation and neglect of ordinary precautions or carelessness, there is risk in handling high tension wires, what then? How about the use of gas? Is it not a fact that gas has killed more people in one county or province than tallow candles probably have in the whole world. On the same theory we should stick to candles. Take any of the operations of civilized existence—take, for instance, the lumber cutting industry. It used to be done with the up and down frame saw. It was a perfectly safe proceeding, and seldom known to hurt anybody, but a very low tension way of producing lumber, not at all suited to the rapid ideas of the present day. We must have lumber and want it cheap, so we introduce the 6 foot circular. Now and then a man is cut in two, and in the course of a year many others are maimed, but it seems a perfectly natural proceeding, and there is nothing heard of legal enactments to abolish the use of a circular saw.

If the theory be accepted that a process must be rendered absolutely harmless before it can be adopted, what becomes of our present system of railroad travel? A locomotive that failed to kill a man if it run over him would be of no earthly use to haul a train. The old-fashioned stage wagon of our forefathers—the low tension system of locomotion—while reasonably safe for its occupants in the matter of murder, arson and sudden death is too slow for the ideas of the present day, and the fast express, though it does occasionally strike an open switch and go down to destruction, is considered a necessity of modern civilization.

On whichever side we look we find this state of evolution from crude and slow beginnings to the rapid developments of modern art. It is not that life is held more lightly now than in the days of our fathers—quite the reverse; but while taking advantage of the rapid developments of science, new methods of protection are being devised, precautions are taken which reduce to a minimum the chances of accidents, and improvements in construction largely reduce all risks.

A few years ago 20 pounds to the inch was considered a fair pressure for steam boilers—even with that there were accidents—but it was not economical, and now, with improved methods of construction, boilers are made to carry 80, 100 and even 160 pounds to the inch with just as much safety and vastly more economy.

It is just so with electricity. With improved methods of insulation and careful and thorough work present prejudice will be swept away; the cumbersome, costly and uselessly "safe" will give place to the high tension, far reaching economical currents that, properly protected, will carry the new illuminant into the residential districts of the largest city. The consumer and the producer will alike benefit, and systems that now are no good to produce either a dividend or a decent light will be relegated to the limbo of the harmless and obsolete along with the tallow candle, the pit saw and the bull team.—*Ex.*

Ruling Inks.

RED.—A fine red ink may be made by dissolving 1 ounce of eosine (No. 12) in 1 gallon of hot soft water; should it be found not to flow sufficiently free a little gall and alcohol may be added.

VIOLET.—To make a violet ink dissolve 1 ounce of Hoffman's violet blue in 1½ gallons of hot water. Alcohol only should be added to make this flow freely; reduce to any shade required by adding cold water.

GREEN.—To make an excellent green ink dissolve 1 ounce of Hoffman's permanent malachite green in 1 gallon of hot water. Add a little gall and alcohol; reduce with cold water to required shade.

YELLOW.—Dissolve 1 ounce picric acid in 1 gallon of boiling hot water, first having mixed the color in a little alcohol. (This is best done with mortar and pestle.) This ink is generally found to flow freely. Should it, however, be found necessary a little gall may be added.

New Style of Flooring.

A curious method of laying floors has been adopted in France and obtained a wide application. It consists in embodying the flooring in asphalt. The new floors are used mostly for the ground stories of barracks, hospitals and for churches and courts of law. For the floors in question pieces of oak, usually 2½ by 4 inches broad, 12 to 30 inches long and 1 inch thick, are pressed down into a layer of hot asphalt, not quite half an inch thick in the well-known herring bone pattern. To insure a complete adhesion of the wood to the asphalt and obtain the smallest possible joints, the edges of the pieces of wood are planed down, beveling toward the bottom so that their cross section becomes wedge-like. Nails, of course, are not necessary, and a perfectly level surface may be given to the flooring by planing after the laying down. The advantages of this flooring, which only requires an even bed on which to rest, are said to be the following:

1. Dampness from below and the rotting of boards is prevented. 2. Floors may be cleaned quickly and with the least amount of water, insuring rapid drying. 3. Vermin cannot accumulate in the joints. 4. Unhealthy exhalations from the soil cannot penetrate into the rooms. Asphalt being impermeable to damp, rooms become perfectly healthy, even if they are not vaulted underneath. In buildings with several stories, as in hospitals, the vitiated air of the lower rooms cannot ascend, an object which it has hitherto not been possible to attain by any other means known. 5. The layer of asphalt will also prevent the spreading of fire from one floor to another in case of conflagration. The flooring described has been laid in the numerous casemates of the forts around Metz, to the satisfaction of the authorities. The cost is about 25 cents per square foot. This estimate, somewhat high, would be much lower in districts where oak and labor are cheaper, and the distance from places of construction less.—*Builder and Woodworker.*

The Westinghouse Engine in the Baldwin Locomotive Works.

IT is our purpose occasionally to select some of our most characteristic or suggestive work to illustrate the application of the Single Acting type of engine in various important directions. For this issue we have selected the power plant in the Baldwin Locomotive Works at Philadelphia. We have many plants much larger both in number of engines and H. P. than this, but perhaps none embody the development of the engine more completely. We have certainly none in which the present favor of the engine rests more substantially on the basis of ascertained facts.

The Baldwin Locomotive Works purchased three small engines in 1882 for some special and rather unimportant service in their smith shop and elsewhere. The company looked as much as anything to the dustproof qualities of the engine in making the selection. Unfortunately this was during our time of experimental development, and the defects in design and unreliability of material employed, as we look back at them from the present standpoint of success, never cease to fill us with a greater appreciation of the single acting principle, which alone enabled an engine so crude to operate at all.

The three engines purchased during the first year were far from being satisfactory to the owners or to ourselves. As a curiosity of the business we might mention that one engine was for some cause, now forgotten, badly wrecked to the extent of cracking the crank case below the flanges and lifting the cylinders clear from the bed. As the engine could not be spared, the owners knocked some bricks out of the foundation, making a channel underneath the sole plate, through which was laid a heavy bar of steel and a similar bar across the cylinder heads, and the two joined together by heavy bolts, clamping the broken engine together. The engine was at once started on its daily work, and from that time weeks have grown into months, and months into years, and, so far as we know, this engine is still doing some rough work about the place at this day.

After a candid conference with us the company decided to withdraw their confidence from the Westinghouse Engines, at least until its future performance elsewhere should change their opinion. It will be noticed, therefore, that during the interval of four years, from 1883 to 1887, no orders were placed with us. During this interval two or three engines were purchased of another well-known make, and we were compelled to accept the unpleasant fact that, notwithstanding our agreeable personal relations, the prospect of further trade was not assuring. It is worth remarking, however, that Mr. Perry, Mr. Vanclain and others connected with the company still retained a strong confidence in the ultimate principle of the Single Acting Engine, and watched its development with interest. Many suggestions have since been incorporated into the present form of engine originated with these gentlemen.

During the four years mentioned the engine underwent a period of marked improvement, and at the end of that time had thoroughly established its claim to a leading position in the trade. As a result the company placed their fourth order for one of our 35 H. P. Standards in 1887 on our strong representation, backed by their own careful investigation. From this point it is hardly necessary to trace the adoption of the engine in detail; the facts are shown in the appended list. Two or three significant points may be noted. It is very generally known that the Baldwin Locomotive Works cover several city blocks, hence the principle of subdivided power was early recognized as the only economical basis of distribution. There are three boiler plants furnishing steam to the series of engines which are scattered throughout the various departments. The 200 H. P. Standard Engine furnished the steam power in the main shop, and was run with the most satisfactory results practically night and day, since it was put in in 1887. This engine replaced three others, two of them being the new engines of another make already alluded to. These last engines were removed to other parts of the works, but have since been replaced altogether by Westinghouse Engines and sold to other parties. In another part of the establishment was a very good engine of a well-known type, requiring two boilers to steam for it with any comfort. With some hesitation its place was taken by one of our engines, when one boiler was found to be ample. While we do not consider this as an efficiency test in a true sense, it is, nevertheless, a fair commercial comparison, since no other changes in load or otherwise were made, except the change of the engine. In another place an 8½ × 8 Standard took the place of a 14 inch vertical engine, doing more and better work.

In 1888 the Compound Engine was perfected, and among its first customers was the Baldwin Locomotive Works, who placed an order for 65 H. P. of this type to take the place of one of our own 60 H. P. Standard Engines removed to another part of the works. An accurate test showed something better than 25 per cent. gain in efficiency, the average result for a week's run being 2.4 pounds coal per H. P. non-condensing, taking steam from a vertical boiler. There immediately followed in consequence an order for a 100 H. P. Compound to replace the two Horizontal Automatic Engines heretofore spoken of. The load of this engine was constant, being electric lights on which frequent and regular ampère readings were taken. Without any other change than that of the engine, the fuel consumption was reduced from hard steaming on three boilers to easy steaming on two boilers, much of the time with the fire doors open. After this naturally followed successive orders for other Compound Engines, both for new work and to replace old engines. A comparatively recent order was for a 250 H. P. Compound to take the place of the 200 H. P. Standard in the main shop, not only because the latter engine had become overloaded, but because the greater efficiency of the Compound was well worth the cost of exchange.

Successive Orders from the Baldwin Locomotive Works.

1st order,	July,	1882....	50	H. P.	Automatic.
2d "	September,	1882....	15	"	Throttling.
3d "	January,	1883....	15	"	Standard.
4th "	January,	1887....	35	"	Standard.
5th "	May,	1887....	35	"	Standard.
6th "	July,	1887....	35	"	Standard.
7th "	July,	1887....	60	"	Standard.
8th "	July,	1887....	200	"	Standard.
9th "	October,	1887....	35	"	Standard.
10th "	December,	1887....	35	"	Standard.
11th "	August,	1888....	65	"	Compound.
12th "	November,	1888....	100	"	Compound.
13th "	May,	1889....	250	"	Compound.
14th "	June,	1889....	100	"	Compound.
15th "	January,	1890....	100	"	Compound.
Total H. P.....			1,130		

In this connection it is worth while to point out how a self contained engine can be handled. The rush of business in this establishment calls for continuous operation night and day from Monday morning to Saturday night. It followed, therefore, that the taking out of the 200 H. P. Standard and the placing and erecting of the 250 Compound on the same foundation, must be done within thirty-six hours—from Saturday night to Monday morning. A sole plate was prepared which would bolt to the old foundation and carry studs so placed as to take the larger engine. At 6 P. M. on Saturday, December 28, the whistle was blown and the 200 H. P. engine stopped. At 3:30 Sunday morning, nine and a quarter hours later, the throttle was opened and the 250 Compound started. During this interval the 200 H. P. engine was stopped, disconnected and removed from the foundations, the 250 H. P. engine set in its place, lined and leveled, pipe connections made, foundation enlarged and the engine started. It is probable that this is as quick a change as was ever made with an engine of equal size. Though it is possible only with a self contained engine which is completely erected in the shop where it is built, it is very doubtful whether it could be done at all, except by a concern which, like the Baldwin Locomotive Works, holds a record of a complete locomotive built from the pig iron seven days from the receipt of the order.

Among other curiosities is a 15 H. P. engine, which, for want of a better place, is boxed in under a platform near one of the large riveting machines, where for five or six years it has run twenty-four hours a day. As this engine is under the care of no particular individual, it is frequently found by the watchman on Sunday afternoon or evening still busily at work, because the attendant at the riveting engine forgot to shut off steam at quitting time.

The use of the Single Acting Engine in its several forms by the Baldwin Locomotive Works amounts almost to a history of the engine. Nearly every phase of its possibilities and limitations has been there developed. Probably no other customer has had so complete and varied an experience with it—certainly no other customer is better fitted to judge of its merits. The entire power department of the Baldwin Locomotive Works is under the immediate charge of a supervisor, whose sole duty is to maintain it at a point of maximum efficiency represented by dollars and cents. Complete tests are made to determine all economical considerations, frequent inspection is the rule, and a running log of performance is kept in every department so far as possible. No result is accepted except as it reduces to a practical value expressed in the balance sheet. Being mechanics of the highest order and themselves engaged in the building of steam engines applied to locomotion, it is certain that their judgment, expressed in the list of engines here exhibited, is unusually practical and valuable. It rests on the fact that the company knows what makes money for it and what does not.

Very respectfully,

WESTINGHOUSE, CHURCH, KERR & Co., Engineers,
17 Cortlandt Street, New York.
620 Atlantic Avenue, Boston, Mass.
156 and 158 Lake Street, Chicago.
511 North Fourth Street, St. Louis, Mo.
Westinghouse Building, Pittsburgh.
608 Chestnut Street, Philadelphia.

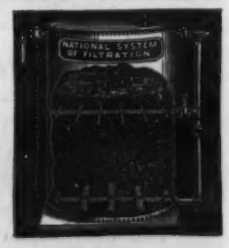
NATIONAL FILTER.

MAIN FEATURES: SIMPLICITY, ECONOMY AND SURFACE WASHING.

We are now altering over to our **NATIONAL** System Filters of the ROESKE, HYATT, and other makes. The "**NATIONAL**" Filter is the only one in the market that can be thoroughly cleansed. In successful operation in the leading Paper Mills of the country.

— SEND FOR CATALOGUE TO —

NATIONAL WATER PURIFYING CO., 145 Broadway and 86 Liberty Street, New York City.



THE EMERSON MANUFACTURING CO.

IMPROVED JORDAN ENGINES

AND

General Paper Mill Machinery,

LAWRENCE, MASS.

THE "NEW ENGLAND" WOOD PULP GRINDER.

With Valuable Improvements and Prices Reduced for the Trade of 1890.

Guaranteed to produce a much larger output than any other machine on the market. No pay required until machines shall fully perform all that is stipulated.

THE LATEST.
THE STRONGEST.
THE MOST SIMPLE.
THE MOST DURABLE.
THE MOST EFFECTIVE.

ROCHESTER PAPER COMPANY, PAPER MANUFACTURERS.

Messrs. SCOTT & ROBERTS: ROCHESTER, N. Y., June, 1888.

GENTLEMEN—In accordance with your desire we herewith advise you that in an hour's test, made the 26th of this month with one of your machines, the machine produced on a basis of 5,880 pounds per twenty-four hours, air dry weight. We were unable to determine the exact amount of power applied, but should estimate that it was a little over 100 horse power. Yours truly,

ROCHESTER PAPER COMPANY.

Will substitute them for ANY OTHER MACHINE, guaranteeing a much larger production with the same power

Will furnish New England Grinders at our expense to be put in place of other Grinders, to be run on a royalty equal to half the net earnings of our machine in excess of the net earnings of the machine displaced.

Machines on hand for immediate delivery.

THE SCOTT & ROBERTS CO., BENNINGTON, VT.

EILERS HYDRAULIC PULP MACHINE.

TAKE NOTICE.

In reference to the testimonial published by the Scott & Roberts Co. in their advertisement, over our signature, we would add that shortly thereafter we tested the Eilers Hydraulic Machine with the same wheel, at the same gate, under less head and consequently with less power, and produced nearly 10 per cent. more pulp of a better quality than that made by the New England Grinder.

ROCHESTER PAPER CO.

The Newest and Best Grinder on the Market.

CAPACITY: 2,500 Lbs. to 4,000 Lbs. PULP, DRY WEIGHT, IN 24 HOURS, WITH 100 HORSE POWER.

ALL pockets operated and controlled by one Hydraulic Cylinder. Two pockets always grinding while the other two are being refilled. No time lost nor any variation of speed by reversing Hydraulic Feed. By the arrangement of pockets, friction is reduced to the minimum.

Fifteen of these Machines can be seen in operation in our mills here.

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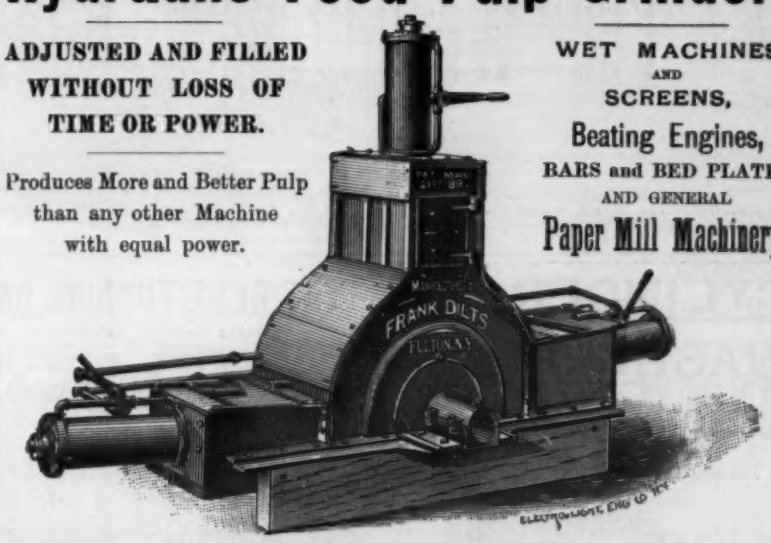

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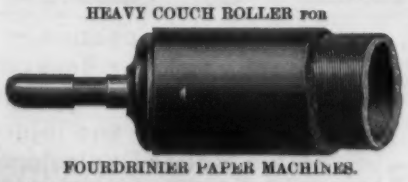

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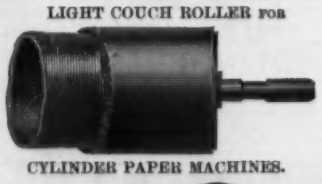

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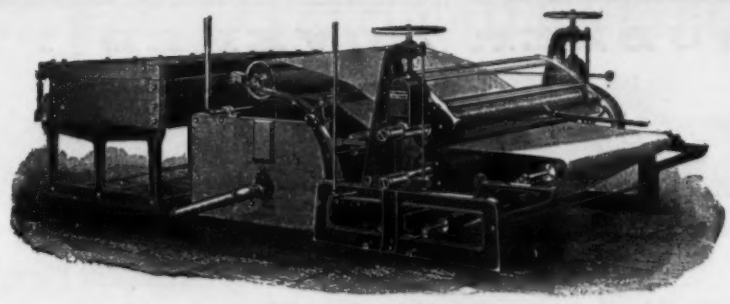

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In the forty years from 1840 to 1880 our imports of the manufactures of steel and iron have been nearly $900,000,000, besides $1,350,999,665 imports of wool and woolen textiles, or a grand total of $2,250,999,665, which has drained the country of that value of gold and deprived hundreds of thousands of workers of labor they might have had, besides adding immensely to the wealth of other nations and their financial prosperity.

The free traders have a kindly care for the foreign laborer, and rejoice to aid him and foreign industries with gold by the thousands of millions, and are never so happy as when promoting the interests of the foreign laborer and the foreign manufacturer, to the exclusion and neglect of our own.—*American Economist.*

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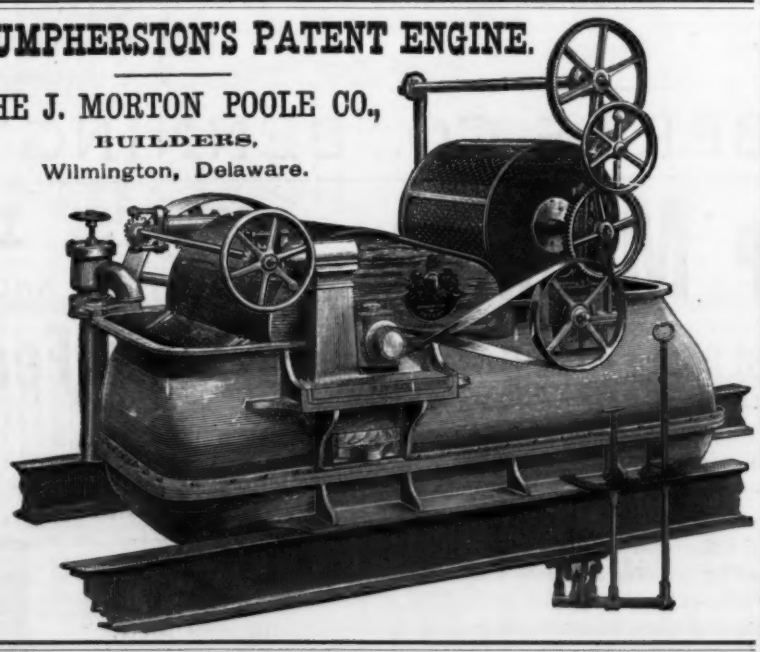

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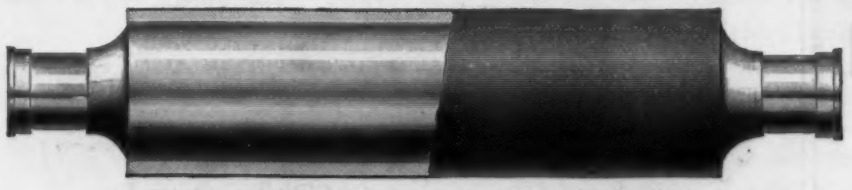

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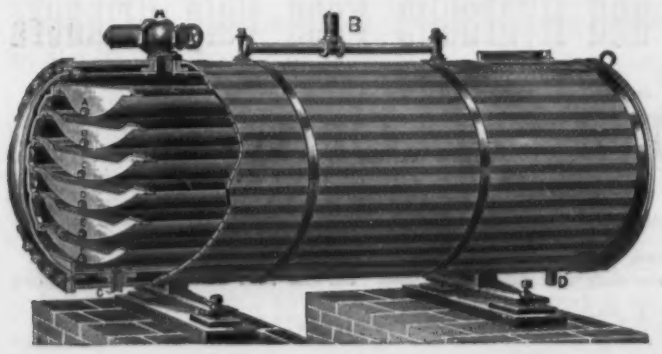

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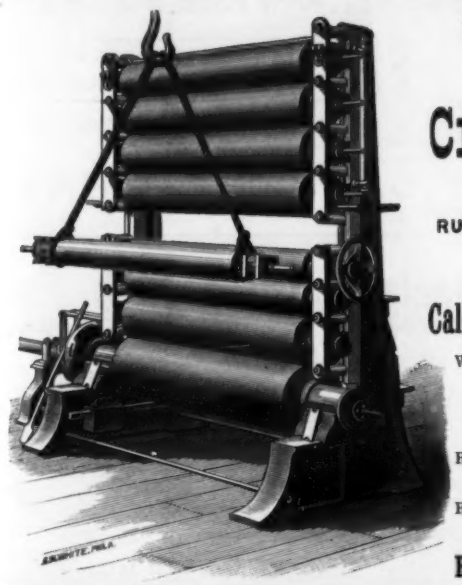

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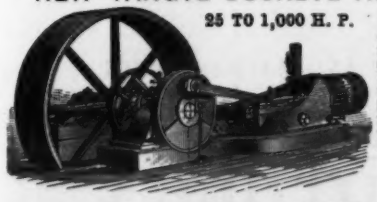

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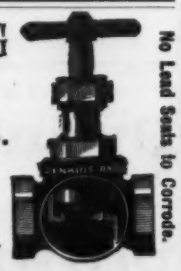

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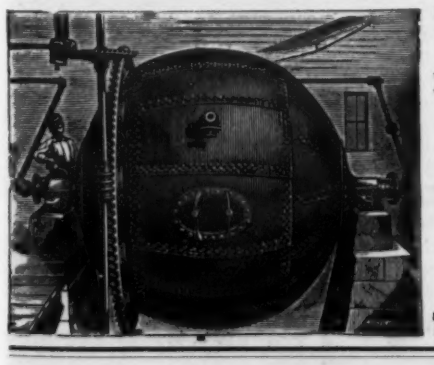

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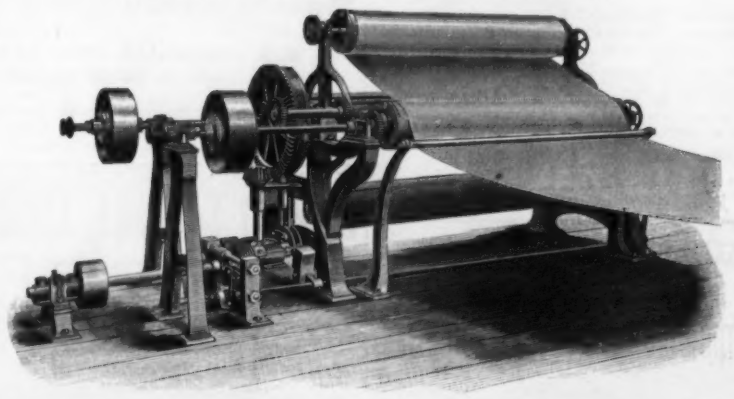

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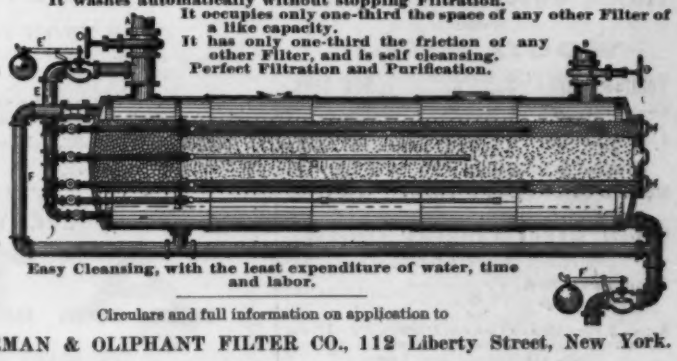

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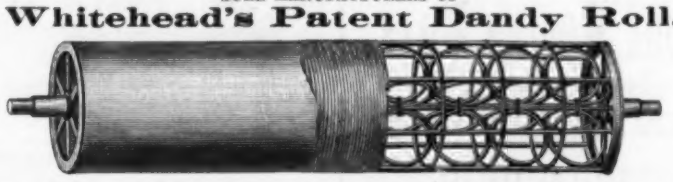
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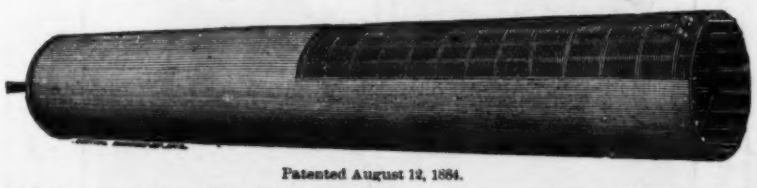
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